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Solner

Oswald Weigel
Antiquariat & Ane. von-und
Leipzig, Königstr. 1.

J. G.

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Roll. N. 1381.

Astron

re

Quarta tabulae eclipsis et
Johannes de Montecce tabula primus
lucis

par

B

Tabulae Eclipsiũ Magistri Georgij Peurbachij. Tabula Primi mobilis Jo- annis de Monte regio.

Indices præterea monumetorũ quæ clarissimi viri Studij Viennensis alumpni in Astronomia & alijs Mathematicis disciplinis scripta reliquerunt. q̃ si lector hæc re oblectauerint: curabimus ut & alia in lucẽ bono Auspicio aliquando progrediantur.

Postremo vt nihil te: quod scitu dignum est prætereat: Inuenies studiosẽ lector ex hoc diligenter impresso uolumine mirum quendam & fecundissimũ plurimũ tabularũ: & pene omniũ Instrumentorũ: puta Astrolabũ: Saphææ: Organi Ptolemæi: Meteoroscopij: Armillarũ: Torquetũ: Rectangulũ: Quadrantũ: & id genus aliorũ (quæ recensere longũ esset) usum & expeditam praxim. Sunt enĩ Theoreumata tabulæ Primi mobilis uniuersalia: omni prorsus regionĩ accõmodata: ex scientia sphericorũ triangulorũ transumpta. Nouarũ insuper tabularũ & instrumentorũ inueniendorũ: area latissima p̃spicacis ingentiũ ultra oblata est.

Coelum Tabella Stati.



DVPLVM
BIBLIOTHECÆ
R. MONAC.

Edicto Imperatorio vetitum est: ne quis in decenio hoc insigne opus imp̃mat vel aliorũ ductu & impensis excusum venditet: sub multa amissionis omniũ exemplariũ: & quinquaginta nũ morũ aureorũ pro singulis impressis vel venditis.



**Joachimi Vadiani De Sancto Gallo Poetae et
Oratoris nuper Caesareis manibus laureati
In laudem operis Epigrāma.**

Qui fragili censes morituram In corpore mentem:
Huc ades: uerum carmine disce breui.
Anne uides: quantas pernix discurret in artes!
Quamq; per occultas euolet orbis opes:
Non satis est terras, & quæ tertia terra, nosse:
Non satis æquoreas aereasq; uices.
Altius in sacros rapitur progressa recessus:
Et uicina deli sidera tractat humi.
Dumq; tenebroso membrorum carcere, clausa est
Maxima coelestis signa uisoris habet.
Quis neget aethera nostras ab origine mentes:
Quis non diuinas, astrigeraq; putet?
Sydereos orbis: motusq; & corpora coeli
Lucida & æternas perspicit arte uices.
Fortunata uiris isthac scrutantibus, olim
Et fuit & nunc est, docta uienna suis.
Qui docet & sequitur coelos sine fine rotatos:
Hos Collimiti prouida cura dedit.
Tanta ut ad astronomos ueniant monumenta nepotes:
Et longo duret tempore partus honos.

¶ Tituli Canonū in tabulas Eclipsiū Magistri Georgij Peurbachij.

1. Tempus Oppositionis uel Coniunctionis mediæ luminariū: locū Solis: & Argumentū Lunæ & latitudinis eius media facileprehendere,
2. Augem Solis inuenire,
3. Tempus ueræ Coniunctionis uel Oppositionis luminariū facile cognoscere,
4. Medios motus Solis: Lunæ: Argumentū Lunæ: & Capitis draconis reperire,
5. Solem uerificare,
6. Lunam adæquare,
7. Verum locum Solis: Argumentum Lunæ æquatū: Item argumentum Latitudinis Lunæ æquatū ad instans ueræ Coniunctionis aut Oppositionis breuiori uia inuestigare,
8. Tempus uisibilis Coniunctionis: atq; diuersitatem aspectus in latitudine ad idem tēpus indagare,
9. Loca Solis & Lunæ ueræ: & argumentū latitudinis uerū ad tēpus uisibilis coniuñctionis inquirere,
10. Latitudinem Lunæ uisam tempore uisibilis coniuñctionis pericrurari,
11. Si Eclipsis Solis in coniuñctione fiat cognoscere: & quantitatem eius & durationē: Principiū quoq; et finem ex tabulis calculare,
12. Latitudinem Lune uisam ad principium atq; finem eclipsis inuestigare,
13. Semidiametros Solis & Lunæ uisuales ac umbræ in loco transitus Lunæ demonstrare,
14. Quantitatem partis obscuratæ: ac totius eclipsis solaris figurā ad uisum depingere,
15. Quantitatem eclipsis Lunæ: durationē eius: principiū quoq; & finem ipsius discernere,
16. Latitudinem Lunæ ueram ad initium Eclipsis Solis & ad finem eius ostendere,
17. Eclipsis Lunatis habitudinem In plano figurare,
18. Eorum quæ de eclipsis Solari dicta sunt exempla subicere,
19. Ea quæ de eclipsis Lunæ dicta sunt exemplo declarare,

Finis Registri Canonū tabularū Eclipsiū Magistri Georgij Peurbachij.

Registrum Canonum Tabule Primi mobilis Joannis de monte regio Viri disertissimi.

Problema

Primum



Generalem tabule usum in primis explanare.

- 1 Cuiuslibet puncti eclipticæ declinationem ab æquinoctiali circulo (si quam habeat) inquirere.
- 2 Proposita declinatione solis quâtalibet: cui puncto eclipticæ correspondeat ipsa explorare.
- 3 Latitudinem lunæ inuestigare.
- 4 Cuiuslibet arcus eclipticæ ab æquinoctiali sumentis Initium Ascensionem in sphaera recta numerare.
- 5 Ex ascensione recta proposita ab alterutra sectionum æquinoctialiū Initium sumente arcum eclipticæ sibi debitum indagare.
- 6 Si quis arcus eclipticæ ascensionem suam equauerit altero termino eius cognito/residuum quoque manifestare.
- 7 Punctum eclipticæ terminantis arcum qui ascensionem suam rectam quæmaxime superat inuenire.
- 8 Data congerie ex arcu eclipticæ & ascensione sua recta/utriusque arcuū discernere.
- 9 Amplitudinem ortuum cuiuscunque puncti eclipticæ ab æquatore declinantis in omni horizonte computare.
- 10 Ex amplitudine ortus supposita punctum eclipticæ cui ipsa debetur agnoscere.
- 11 In omni regione arcum diurnum puncti eclipticæ quodcunque dederis numerare.
- 12 Quod præcedens de punctis eclipticæ pollicetur/alia ratione scrutari.
- 13 Si diem longissimā in regione quapiam cognoueris: quo pacto latitudinē eius inuenias edocere.
- 14 Cuiuslibet arcus eclipticæ a sectione uernali incipientis ascensionem obliquam in regione quacunque dimetiri.
- 15 In omni regione ex data ascensione obliqua ab altera sectionum Inchoata arcum eclipticæ sibi debitum inuestigare.
- 16 Altitudinem solis supra horizontem existentis in omni regione omniſque hora perpendere.
- 17 Sole in aliquo signorum borealium existente/altitudinem eius in circulo uerticali explorare.
- 18 Distantiam solis horizontalem a circulo uerticali cognoscere.
- 19 Angulum ex coincidentia eclipticæ & meridiani/qui apud quodlibet ipsius eclipticæ punctum prouenit inuestigare.
- 20 Angulum ex concursu eclipticæ & horizontis procreatum indagare.
- 21 Quantitatem anguli ex ecliptica & circulo altitudinis prouenientis addiscere.
- 22 Quod præcedens pollicetur/aliter comprehendere.
- 23 Angulum nuperime tractatum alia ratione sciscitari.
- 24 Gradum ascendentem/aut punctum eclipticæ orientale in omni regione/& omni hora per hanc tabulam inuestigare.
- 25 Si quis ascendente in regione qualibet habuerit: quo pacto medium cæli inuestiget manuducere.
- 26 In omni regione eleuationē solis supra horizontē quacunque hora data aliter quæsuperius dinumerare.
- 27 Arcum horizontis quem abscindit ex eo circulus horarius deprehendere.
- 28 Arcum circuli uerticalem/quem horarius quilibet ex eo secat circulus dimetiri.
- 29 Angulos horarios in plano super meridianū quidē erecto: ad horizontē autē inclinato describere.
- 30 Si planum aliquod horizontē quidem ad rectos secet angulos/ad meridianū autē inclinatum fuerit: angulos horarios in eo prouenientes ministerio numerorum addiscere.
- 31 Plano aliquo tam ad meridianum quæ ad horizontem inclinato: quibus rationibus angulum quæque horarium agnoscamus breuiter exponere.
- 32 Data ascensione obliqua cuiusuis noti arcus eclipticæ ab arietē aut librā deducti: latitudinē regionis ubi talis contingit ascensio indagare.

- 34 Pro proposito arcu egypticæ altitudo quæ ab alterutra æquinoctiali sectione exorsio cum ascensione sua obliqua: altitudinē poli æquilonū in ea regione ubi talis obliqua ascensio accidit emetiri.
- 35 Dato gradu mediæ cœli cum amplitudine ortiua ascendētis: ascendētē ipsum latitudinēq; regionis (si quam habuerit) inuestigare.
- 36 Ex medio cœli dato: ac ascendente cognito: latitudinē regionis elicere.
- 37 Cognita latitudine alicuius regionis: in quanto tempore quilibet arcus egypticæ borealis datus circum uerticalem pertranseat experiri.
- 38 Duabus regionibus idem eodem instanti ascendētis notum habentibus: puncta autē egypticæ in meridianis suis diuersa & cognita: utriusq; latitudinē differentiaq; longitudinū suarū perscrutari.
- 39 Si duæ quæuis regiones notarū latitudinū eodem instanti cōmune quoddā ascēdens cognitū habuerint: quantū longitudinibus earū interit spaciū explicare.
- 40 Si duarum regionū latitudines notæ fuerint: cum differentia longitudinū suarum: an sit aliquod ascendens eodem instanti ipsis cōmune subtiliter explorare.
- 41 Duabus regionibus notas latitudines longitudinesq; aut differentiam longitudinū suarū cognitā habentibus: ac in ascēdente quopiam cōmunicantibus: ascendens ipsum cōmune sciscitari.
- 42 Quantum eleuatur polus borealis super circum positionis stellæ cuiusuis: aut alicuius puncti in cœlo signati perquirere.
- 43 Data eleuatione poli borealis supra semicirculum positionis quempiam: quantus sit arcus æquatoris ab eodem semicirculo & meridiano interclusus experiri.
- 44 Cognita portione circuli uerticæ clausa inter polum horizontis & circum positionis quemcūq; quantū polus borealis supra eundem circulū positionis eleuetur: quantus deniq; sit arcus æquatoris inter meridianū & eundem circum positionis comprehensus inquirere.
- 45 Duobus locis in superficie terrestri signatis: longitudinū latitudinūq; notarum: quo pacto intercedat pedinem eorum metiri deceat explorare.
- 46 Datis latitudinibus duarum regionum inæqualibus cum angulo positionis: differentiam longitudinum suarum indagare.
- 47 Diuersitatem aspectus lunæ in circulo altitudinis perquirere.
- 48 Diuersitatem aspectus lunæ tam in longitudine quā in latitudine perscrutari.
- 49 Minuta casus in defectione solari supputare.
- 50 Punctum flexionis tenebrarum in eclipysibus determinare.
- 51 Cognito loco uero stellæ siue fixæ siue erraticæ cum eius latitudine declinationē suam ab æquinoctiali circulo sciscitari.
- 52 Punctum egypticæ cum quo stellæ qualibet cœlum mediat cōmonstrare.
- 53 Declinationem stellæ cuiuslibet aliter quā antehac traditum est indagare.
- 54 Punctum cœli mediationis alia quadam ratione perscrutari.
- 55 Per datam stellæ declinationem: punctūq; egypticæ cum quo ipsa cœlum mediat: latitudinē suam ac uerum locum in egypticæ cognoscere.
- 56 Cognita latitudine cuiuspiam stellæ: punctūq; cœli mediationis explorato: locum eius uerum in egypticæ/declinationēq; ab æquinoctiali circulo perquirere.
- 57 Punctum egypticæ quo cum stellæ qualibet oritur: itēq; punctum cum quo occidit in quauis regione artificiose rimari.
- 58 Per altitudinem stellæ cuiuscūq; & distantiam horizontalem a meridiano atq; medium cœli: declinationem ipsius stellæ & punctum egypticæ cum quo cœlum mediat: indeq; latitudinē & uerū locum eius in egypticæ subtiliter indagare.
- 59 Si uera loca duarum stellarum fixarum cognita fuerint cum latitudinibus suis: intercededinē earū agnoscere.
- 60 Radiorum projectionem rationabiliter definire.
- 61 Intervallum apparitionis aut occultationis stellæ perscrutari.
- 62 Aequationem octauæ spheræ secundum Alonsi fundamenta numerare.
- 63 Aequationem octauæ spheræ secundum considerationem Tebith supputare.

Finis Registri Tabula: Primi mobilis Ioannis de Monte regio.

**Præstantissimo viro D. Thomae Kesch Philosopho
Doctae Theologo: & ecclesiae cathedralis Viennensis
Canonico Georgius Tannstetter Collimitius
Lycoripensis Artium & Medicinæ doctor.
Studijq; vniuersalis Viennensis
in Astronomia professor
ordinarius. S. D. P.**



Hdituro mihi consummatissimū opus tabularum eclipsium Magistri Georgii Peurbachii: nemo mihi omnium occurrebat/ cui recte id ipsum dicere uideret/ q̄ tibi Thoma compater doctissime. Eras enī antea/ cum bibliotheca facultatis artium præfectum ageres/ nobis in faciunda exemplaris copia/ quo ad hanc editionem potissimū usi sumus/ perq̄ sedulus adiutor. Et cum tuæ professionis ratio id postulare/ præ cæteris ingenijs studiis/ in quibus Encyclopædiam absoluisi Mathematicis disciplinis studiosissime semper incubuisti/ Eatq; cultores adeo amplexus/ imo demitatus es: ut quas artes omnium primū obseruares/ facile scire possent hi qui te unq̄ nouere. Nolo ego hoc in loco recensere: quia humanitate: qua benignolentia: qua munificētia me semper prosecutus fueris. excreceret enim epistolæ ratio: & a propositi cōsilio nimis diuertendum foret. Proinde cum Andream Stiborium præceptorē adeo ames: adeo semper extollas & cōmendes: eiusq; consuetudinis studiosissimus sis/ & multis iam annis fueris: quis nō colligat: te me amare: qui a præceptoris nostri uita & eruditione pro uirginitate mea nō libens unq̄ abfui. Suscepit igitur præstantissime Thoma iam primum prælo excusas tanti Mathematici tabulas/ quas Ioannes de monte regio authoris discipulus: (dum in humanis fuit) Waradensis episcopo dicauerat: & Waradienses tabulas appellauit. Quas laboribus hercule non paruis reuistas & emendatiores factas emisimus sub tuo nomine: eo maxime q̄ in te patronum habiturus es: qui detractoribus respondere examulsum posset: si qui emergerent: ut certe emerituros non dubito: præsertim q̄ opus hoc exemplaribus alibi excerptis/ multis admodum est notum. Ne tamē pleriq; sciolī potius q̄ eruditi prostritis & alibi notis/ nos nostri gymnasiū gloriā ex Mathematicæ studiis astruere uelle existimaret: breuissimū cathalogum eruditissimorum mathematicorum: quos uetustissimum Germaniæ Viennense gymnasium summo cum honore & immortalī gloria aluit: cum his quæ scripsere/ hisce litteris subnectendum duxi. Ut optimus quisq; discudicare posset: quanto in errore sint isti: qui Viennensi gymnasio: ut obscuro & tepescēti diligentia parum tribuere solent. Si enim tot in cunctis uir in hac una professione & perq̄ alloquin rara hic floruerit: quis & in reliquis pleroseq; non floruisse asserat? Verum hac mi Thoma & tibi & his qui tui sunt similes perpendenda relinquo. quos nostrum hoc institutum in edendis codicibus ad cōmunē utilitatē pbaturus sat scdo. Vale bene. Viennæ Austriæ Septimo Idus Ianuarias. Anno Christi supra seculumillefimum decimo quarto.

**Viri Mathematici quos inelytū Viēnense gymnasiū
ordine celebres habuit.**

Henricus de Bassia Germanus Vir undecūq; doctissim⁹: ex uetustissimo patiensī studio primus omnīū mox a primea nostri studiū Viēnensis fundatione Theologia Astronomiam & alias artes nobilissimas inuexit. Theologia cū Henrico de oyta theologo celeberrimo prim⁹ docere coepit. Sed q̄ pfundus & subtilis in Astronomia prim⁹ suarū cōmentatōnū in genesis facile testat. Vel hoc etiā q̄ doctissim⁹ astronomorū Parisius Ioannis de linertis germani: & Ioannis de saxonia contemporaneus extitit. Scripsit theoricās planetarū: & aliā quādā in astronomia. In theologia opera multa & p̄clara: q̄ Viēnā in bibliotheca collegiū ducalī reposita sunt. Obiit anno Christi. 1397. Tertio Idus Februarii. In ecclesia cathedrali Viēnensi honorificentissimē sepultus. Cui & collega suo Henrico de oyta hoc epitaphium sub insigni pictura positum est.

Hic sua busta tenent fidei firmissima quondam
Lumina: diuinū quā sonuere melos.
Quicq; diu docuere deum sub numine trino
Solum: cui subeant quicquid in orbe uago est.
Ingenitum patrem natūq; & pneumaticis ignem
Quo dūce succendit pectora uerus amor.
Sacra Viēnensi Cathedra qui dogmata patrum
prolessi: cunctis scripta dedere plagis.
Iamq; des quem tum toties cecinere fruunt
Viuunt & eterno phama parata simul.

Kalendarium quod multis sequentibus annis utile erat & iucundissimū.
Tabulas uarias de parte proportionali.
Libellum de arte calculandi in minutis phisicis.

Equatorium motuū planetarum ex Campano transumptum.
Compositionem Astronabili: & utilitates eiusdem: & quorundam aliorum instrumentorum.
Habuit discipulos plures egregios: quorum uetustas nomina aboleuit. Hic unicus Georgius prunet ex Ruspach studiosissimus astrorum obseruator pulcherrima instrumenta & libros quosdam collectos post se reliquit: quæ in bibliotheca præfata hodie cernuntur.

Circa hæc etiā tempora uenerabilis dñs Georgius præpositus Neoburgensis: & Ioannes Schintels
Ioannes feldner Artium magistri uaria & iocunda quidē in astronomia elaborauerunt.

GEORGIVS EX PEVRBACH In limitibus bauariæ & Austriæ natus. Artifici & phie magi studiū Viēnensi. In collegio ciuili collega. Præceptor Ioannis de mōte regio Viēnæ nouus astronomiæ instaurator: floruit iperātē gloriosissimo Rōnoꝝ impatore Friderico tertio Archiducē Austriæ. Qui & a p̄fato dño impatore: & Sigisfūdo altero archiduce austriæ annuo est dotatus stipēdio: & a Reuerēdissimo cardinalē constātinopolitano D. Bessarione/dū illuc legeret: ob eius doctrinæ excellentiā sūma ueneratione habitus. Mortē obiit nondū q̄dragenarius Anno Chri. 1462. Sexto Idus Aprilis. In ecclesia cathedrali uēnā: hoc sibi inscripto epitaphio sepultus: Extinctum dulces quidam me fletis amici.

Fat uocant. Lachesis sic sua fila trahit.
Scripsit hic celeberrimus uir uaria opuscula & præclarissima. sed quæ ad nostrā noticiam peruenire/di ligenda D. Andreæ Stiborū conquisita sunt hæc
Sex primi libri Epithomatis Almaeisti.

Collectio tabularum primi mobilis & quarundam noua compositione cum singulari usu.
Canones Astronabili.
Introductorium in Arithmeticam.
Ereſis Organū Prolemæi pro usu horarum germanicarum ad omnia climata cum demonstratione.
Canones Gnomonis cū noua tabula pulcherrima.
Cōpositio Cōpassi cū regula ad oīa climata.
Compositio nouæ ulgræ uisoria: cum lineis & tabula noua.

Instrumentū pro ueris conlunctionibus solis & lunæ. In quo uetus instrumentū de insufficientia taxat.

IOANNES DE G M V N D E N Anno Christi. 1406. in liberaliū artium & philosophiæ magistrū Viēnā promotus Astronomiā docuit et sacra Theologiæ operā dedit. Deinde suarum uirtutū & doctrinæ merito canonificat⁹ in ecclesia S. Stephanit: & eiusdē studiū uicēcellariati aliq; bñficia ecclesiastica adep⁹ est. Morit⁹ anno christi 1442. In ecclesia cathedrali Viēnensi sepult⁹. Scripsit hæc: q̄ adhuc in bibliotheca facultatis artū extāt. Tabulas de planetarū motibus: & luminariū eclypsibus uerissimas ad meridianū Viēnensem.

Canones in tabulam tabularum.
Tractatum sinuū.

Quæ semper coluit: liber & astræ colat.
Theorica planetarū opus insigne.
Tabulæ eclypsū sup meridianū uiēnensi.

Noua tabula finis de decē minutis in decē/per multas millenarias partes/et usu: quæ plurimam rerū
 nouarum in astronomia occasio fuit.
 Modus componendi & demonstrandi tabulam altitudinis solis cum tabula ipsa.
 Modus describendi horas ab occasu in pariete.
 Tabulæ æquationis motus planetarū noua/nondum perfectæ & ad ultimū completa.
 Tabula noua proportionis paralellorū ad gradus æquinoctialis cum compositione eiusdem.
 Tabula noua stellarum fixarum.
 Almanach perpetuū cum canonibus reduxit ad nostra tempora.
 Plura de quadrantibus.
 Calculauit & almanach pro annis pluribus. Fecit sparas solidas/& alia plura instrumenta.

IOANNES DE MONTEREGIO FRANCVS. Germaniæ decus. Artium &
 philosophiæ magister In astronomia & in omni arte mathematica ita excelluit: ut nouus artis princeps
 ab omnibus haberet. A potētissimo rege ungarie Mathia/cui tabulam primū mobilis inscripsit: & aliis
 Reuerēdissimis p̄fati regni ep̄is: quibus alias tabulas & instrumēta dicauit: annuo stipēdio: præciofissi-
 mis uestibus: aliisq; liberalissimis munerib; remuneratus est. Ad Nurenbergā deinde p̄fectus/magno
 honore a ciuib; suscipit. Et postremo ob Calendarii nostri emēdationē a Sixto quarto p̄fice maxi-
 mo in urbem uocat. ubi rebus infectis febre pestilentiali: uel (ut alii asserunt) ob inuidiam a Georgii tra-
 p̄funt filis ueneno interemptus est. Monumenta quibus nomen suum per uniuersam fere Europā
 transmissit sunt hæc.

Index operum Ioannis de Monte regio: quem dum in
 humanis erat imprimi curauit: huc secundario appressus.

Aliena.

Theoricæ nouæ planetarum Georgii peurbachii Astronomi celebratissimi cumfigurationib;
 oportunis. Hæc duo explicita sunt.
 Marci manlii astronomica. Cosmographia Ptolemæi noua traductione. Nam uetula ista Iacobi angeli fiorētini/quæ uul-
 go habetur/uitiosa est: interprete ipso (bona uenia dictum fuerit) neq; linguæ græcæ satis neq;
 mathematicæ noticiam tenente. Quæ in resummis arbitris fidem haberi fas erit Theodoro
 gazæ clarissimo uiro ac græcæ latinæq; doctissimo: & Paulo florentino græcarum quidē haud ignarorū
 in mathematicis autē plurimū excellenti.
 Magna compositio Ptolemæi: quam uulgo uocant almaestum noua traductione.
 Euclidis elementa cum anaphoricis Hypsiclis editione Campani: euulsis tamen plerisq; mendis: quæ
 proprio etiam indicabuntur cōmentariolo.
 Theonis alexandrini clarissimi mathematici cōmentaria in Almaestum.
 Procli transformationes astronomica.
 Quadripartitum Ptolemæi & Centum fructus eiusdem noua traductione.
 Iulius firmicus quantus reperitur.
 Leopoldus de Austria. & si qui alii prædictores astrologici illustratione digni uidebunt. Nam Antonii
 quoq; de montulmo: quib; fragmenta in usum multiplicem exponentur.
 Archimedis geometriæ acutissimi opera de sphaera & cylindro. De circuli dimensione. De conalib; &
 sphaeralibus. De lineis sphaeralibus. De æquiponderatibus. De quadratura parabolæ. De harenæ nu-
 mero: cū cōmentariis eutocii ascolonitæ in tria opera ex prædictis: scilicet de sphaera & cylindro: de di-
 mensione circuli: de æquiponderatib;. Traductio est Iacobi cremonensis: sed nō nullū emendata.
 Perspectiua Vitelonii: opus ingens ac nobile. Perspectiua Ptolemæi.
 Musica Ptolemæi cum expositione Porphyriti.
 Menelai sphaerica noua editione.
 Theodossi sphaerica. Item de habitationibus. De diebus & noctibus noua traductione.
 Apollonii pergenis conica. Item Sereni cylindrica.
 Heronis inuenta spiritalia Opus mechanicum miræ uoluptatis.
 Elementa arithmetica Iordanii. Data eiusdem arithmetica.

Quadrupartitum numerorum: opus uariis scatens argutis.

Problemata mechanica Aristotelis.

Hygini Astronomia cum deformatione imaginis celestium.

Facta preterea est arbor rhetorica tulliana speciosa imagine.

Et fiet descriptio totius habitabilis notæ: quam uulgo appellant Mappam mundi. Cæterum Germania: particularis tabula. Item Italia: Hispania: Gallia: uniuersa: Græciaq; Sed & suas cuiusq; historias ex auctoribus plurimis cursim colligere statutum est: quæ uidelicet ad montes: quæ ad maria: ad lacus amnesq; ac alia particularia loca spectare uidebuntur.

Opificis tētata

Quæ essent ne prodenda an non pudor ingenuus & Respublica litterarum diu inter se disceptauere.

Ratio audendum censuit.

KALENDARIVM NOVVM Quo p̄munt cōsuetudines ueræ atq; oppōnes lūiarū Itēq; eclip̄ses eorū dē figuratæ. Loca lūiarū ueræ quotidie. Horarū tā aquinoc̄tialiū q̄ tp̄aliū discrimina duplici instrumēto ad quasuis habitationes. Ac alia plurima scitu iuctū dissima. Ephemerides quas uulgo uocāt Almanach ad triginta duos annos futuros. Vbi quotidie inuēberis ueros motus omnīū planetarū: capitūq; draconis lunaris: una cū aspectibus lunæ ad solem & planetas. Horis etiā aspectū eorū dē haud friuole adnotatis. Neq; planetarū inter se aspectibus prætermisiss. In frontibus paginarum posita sunt indicia latitudinū. Eclip̄ses deniq; lūmīnariū (siquæ futuræ sunt) locis suis effiguntur.

Hæc duo opera iam absoluta sunt.

Cōmentaria magna in Cosinographiā Ptolemæi: ubi exponit fabrica usūq; instrumētī Methæroskopii: quo Ptolemæus ipse uniuersos ferme numeros totius opis sui elicit. Falso enī quispiā crediderit totū longitudinū latitudinūq; numeros p̄ supernorū obseruationes innotuisse. Preterea descriptio sphaeræ armillaris: una cum tota habitabili in plano ita dilucidatur: ut pleriq; omnes discere queant. quam nemo antehac latine intellexit: uitio traditoris obstante.

Cōmentariolū singulare cōtra traductionē Iacobi angeli Florentini. quod ad arbitros mittetur.

Theonis alexandrii descriptio in sex uolumib; cōtra Georgiū trapezuntinū: ubi plane quis deprehēdit friuola eius esse cōmētaria in Almaiēstū: traditionēq; ipsam op̄is Ptolemæici uitio nō carere.

Cōmentariolū quo cōmonstrant placita Cāpani ex editione elemētōrū geometricorū reicienda.

De quinque corporibus æquilatis: quæ uulgo regulatæ nuncupantur: quæ uidelicet eorū locum impleant corporalem: & quæ non: contra cōmentatorē Aristotelis Auerroem.

Cōmentaria in libros Archimedis eos qui Eutoeii expositione carent.

De quadratura circuli: contra Nicolaum cūsensem.

De directionibus: contra Archidiaconū parmensē.

De distinctione domiciliorum cœli: cōtra Campanum & Ioannem gazulum ragusinū: cuius & alia de horis temporalibus decreta ibidem retractantur.

De motu octauæ sphaeræ: contra Tebith suosq; sectatores.

De instauratione calendarij ecclesiæ

Breuiarium Almaiēsti.

De triangulis omnimodis quinque uolumina.

Problemata astronomica ad Almaiēstū totum spectantia.

De Cometæ magnitudine remotioneq; a terra. De loco eius uero &c.

Problemata geometrica omnimoda Opus fructuosæ iucunditatis.

Ludus pannoniensis: quem alias uocare libuit Tabulas directionū.

Tabula magna primi mobilis: cum usu multiplici: rationibusq; certis.

Radij uisorii multorum generum: cum usibus suis.

De ponderibus & aqueductibus: cum signationibus instrumentorum ad eas res necessariorum.

De speculis uisoriis atq; aliis multorum generum usūq; stupendi.

In officina fabrilī ASTRARIVM ī cōtinuo tractatu est. Opus plane p̄ miraculo spectādū. Fiant & alia instrumenta astronomica ad obseruationes cœlestium. Itēq; alia ad usum uulgarem quotidianum: quorum nomina longum est recitare.

Postremo omnīū artē illā misticā litterarū formatricē monimētis stabilib; mandare decretū est. (deus bone faueas) Quæ re explicita: si mox obdormierit opifex: mors acerba non erit: quom tantum munus posteris in hereditate reliquerit: quo ipsi se ab inopia librorū perpetuo poterunt uindicare.

Chi duo vlti celeberrimi Astronomi nobilissimā disciplinā e memoria hominū pene obliuiscitā magnifice restituerūt. Reliquit post se viros doctos & excellētes in astronomia Magistru Henricu Feldner, Magistru Eberhardu Schledinger, Magistru Ioannē de phortzū philosophu Astronomu & Theologu insignē. Magistru Ioannē de kupferberg, Ioannē dorn eorundem instrumētōz elaboratorē artificiosissimū. Hic postea ordinē fratrum predicatorū ingressus ibidem uaria instrumēta ex aere nouiter uero sphaeras solidas tres mirā magnitudinis diligenter elaborauit. Vixit hic frater Ioannes in monasterio fratru predicatorū usq; in annū christi. 1509. ubi magno confectus senio quicuit in pace.

CHRISTANNVS MOLITORIS EX CLAGENFVRT Artium & philosophiæ magister nostri studij Astronomus insignis. Qui prognosticis suis magnam sibi gloriā præ ceteris suæ ætatis astrologis cōparauit. Scripsit in astrologia certa opuscula: quæ apud doctos magno in precio habent. Obiit Viennæ ex peste Anno Christi. 1495. Habuit discipulos multos. Inter quos magister Ioannes fabri ex Weyssenburg non parū pfectissimē uidet. qui & Christoferu fabri eius cognatum Artium & philosophiæ magistrū in astronomica disciplina egregie instituit.

IOANNES MUNTZ EX PLABEIRN Artium magister. Sacræ theologiæ baccalaureus formatus: & ecclesiæ cathedralis Viennensis canonicus: In Astrologia ita excelluit: ut nulli sua ætate secūdus iure estimari potuit. Scripsit pgnostica a stellis sumpta: q̄ præ aliis oib; tūc in precio erat. Obiit autē hic uenerandus uir Viennæ Anno Christi. 1503. Tertio nonas Decembris In ecclesia cathedrali sepultus.

IOANNES STABIVS AVSTRIACVS Vates & poeta. Cæsareæ maiestatis Cosmographus & historicus. Vir omnifarij eruditus: & in nouarū rerū inuētionib; foelicissimū ingenij. Cuius peritatis inuētis inuētis: & illustrib; Cæsar Maximilianus quotidie oblectatur. Et eius Subortij (de quo paulo infra dicā) ingenia miratus: lectiones publicas in astronomia & mathematica Viennæ nouo stipendio instituit. Inter cetera nobilissima ei; inuēta mathematica hæc a me discipulo suo collecta sunt.

Horoscopion uniuersale in lineis helicis Opus mirandum.

Horoscopion item uniuersale in lineis columnariis.

Instrumentum ascendētis cum domib; & stellis fixis ad diuersas eleuationes.

Instrumentum horometrum ad omnia climata cum uario usu.

Cōpositio Methereoscopij pro accipiēda lōgitudine ciuitatis ignota: cōpeditiori uia q̄ Ptolemæus hēt.

Compositiones ualarum prolectionum uniuersalium Ptolemæi pro toto globo.

Varia chartæ chorographicae propria peregrinationis lustratione depictæ.

Descriptio uariorū modorū pingēdi tabulas cosmographiæ Ptolemæi ex ueris p̄dictis artis p̄cturæ.

Modus distantias miliariorum inter diuersa loca uariis instrumentis mensurandi.

Modus constituendi tabulas cosmographiæ: quo tam ab uno loco q̄ a diuersis ad diuersa loca distantia miliariorum rite inueniatur.

Cōstitutio tabulæ cosmographiæ: sub quo gradu signi: & cuius planetæ dñio quīs h̄ratio sit subiecta.

Modus faciendi horologium lunare ad quamcūq; eleuationem & superficiem in lineis helicis

Et alia plura iucundissima mathematica. In reliquis deniq; artibus uir subtilis & penetrantis ingenij Carmine & prosa plura & pulcherrima molitur: quibus se aliquando posteritas oblectabit.

ANDREAS STIBORIVS BOIVS Philosophus Mathematicus & Theologus acutissimus. Ecclesiæ cathedralis Viennensis canonicus. Mathematica multis annis publice cū magna sua gloria: & deniq; maxima suorum discipulorum utilitate professus est. Eius ingenij excellentia ex his operibus quæ subscripto indice continentur: quæ & adhuc deo uolente parabitur facile probabitur.

¶ Index lucubrationū eiusdē magistri Andree Stiborij Boij p̄ceptoris mei.

Opus umbrarū quinq; libris partialib; diuisum. In quo diuersarū p̄lectionū speculationes/instrumēta/ et horologia noua cū uariis circulis sphere ad diuersas eleuationes & superficies comprehenduntur.

Liber instrumētōz astronomicorū primi & secūdi mobilis/cū canonibus propriis & ueteribus.

Glypeus austriacus cum canonibus. In quo astrolabij facies omni momento relucet.

Libellus de uariis horalogijs sphericis: concavis: columnariis: pyramidalibus: annularibus.

Libellus de uariis compasis.

Libellus de uariis quadrantibus.

Introductorij in sensibilem philosophiā cū uariis astronomicis p̄cturis & kalendario astronomico.

Arma pietatis Stiborij.

Cōreplatio fcoue.

Contemplatio faciei faluatoris.

Libellus de auctoribus mathematicis.

Præfationes in libros diuerfos in mathematica a fe publice profeflos.

Determinations quarundam quæftionū de quolibet.

Libellus primi mobilis quadripartitus: geometricæ: arithmetice: exemplariter & inftrumetaliter &c.

Contemplatio speculi pietatis.

Contemplatio de diuerfis matrimonijs.

¶ Index vetuftiffimorum exemplarium magistri Andree Striborij Boij.

In perspectiua.



Itelonis ingens & cōsummatū opus.
Alhacen auctorem perspectiue.
Bachonis rogerii p̄spectiua singularē.
Bachonem de speciebus.
Eundem de loco stellarum.

Alius liber de loco stellarum singularis.
Librū de iride demonstratiuū & cōsummatissimū.
Balneolum de centro uisus.
Librum de speculis uisitoris secretum.
Bachonem de eisdem.
Balneolum de foramine triangulari.
Eundem de finibus & chordis optimū.

Theorice campani opus singulare.

Theorice henrici de haflia.

Demonstrationes campani super theoricas.

Reprobationes ep̄yclorū.

Ptolemeus de arte spharica.

Esculeus de ascensionibus.

Abhomadi de nubibus.

De figura sectoris.

Canones Ioannis de monte regio super albione.

Eiusdem super astrolabio.

Eiusdem super Torqueto.

Eiusdem super quadrato geometrico.

De ualore triangulorum liber antiquissimus.

In Geometria.

Euclidē cū antiquissimo cōmēto incerti auctoris.
Geometriā cōmensuratoris absolutissimū opus.
Domini cum parisiensem de cōmensurationibus.
Quadraturam circuli Cuse Archimedis et allox.
Cusam de transmutationibus figurarum.
Idem de complementis theoricis.
Liber Geometrie quadripartitus singularis.
Quadratum geometricum cum canonibus & tabulis Georgii peurbachii.
Demonstratio linearum semper approximantiū et nunq̄ concurrentium.

In Arithmetica.

Quadripartitū numerorū opus cōsummatissimū.

Arithmetica Iordani.

Algorismus demonstratus.

Rithmomathia.

De misficatione numerorum.

Achmetis de proportionibus singularibus.

De cōmensuratione motuū cœli.

Dedomenorū euclidis.

Iordanus de datis.

Demonstrationes cosse.

In metaphisica.

Alberti de causis Ep̄itoma totius platonice philosophiæ.

Metaphisicam phisicā & theologā lullii.

Propositiones proculi ducente & undecim.

Propositiones methodii singulares.

Propositiones clementis pape.

In adagia.

Magiam alberti magni.

Alkindus de radiis stellaris.

Libellus Linconiensis de lineis phisicis.

De potentia actiua & passiua mirabilis.

Et quedam alia.

In Astronomia.

Almaelestū maius duplici translatione & glosulis.

Commentariū Georgii ualle in almaelestum.

Epitoma Almaelestī Virdini.

Epitoma albategni.

Opus demonstratiuum Gebr̄i nouem librorum.

Planisphærium ptolemi.

Planisphærium Iordani.

Demonstratio astrolabii Iordani.

Opus theodosii de spheris.

Milleus de triangulis sphericis.

Liber demonstratiuus tabularum primi mobilis.

Demonstrationes albionis instrumētū nobilissimū.

STEPHANVS ROSINVS Ex augusta uindelicor. Artū & philosophiæ magister. Sa-
cre pagine baccalaureus. Decretor licētiatus. Cathedralis ecclesiæ Viennensis canonicus Astronomiā
aliquidū fidelissime docuit. Supputauit tabulam declinationū stellarū fixarū & uaria prognostica: ma-
iora proculdubio compilaturus.

IOANNES ANGELVS Bauarus Ex Aichen. Artū & medicīne doctor. Astronomus ex-
cellens: qui specialiter plurimū in emendatione librorū & tabularū ualuit. Scripsit libellū de correctione
Calendarii. Supputauit ephemerides plures: & uaria prognostica. Tabulas æquationū motūū planeta-
rum magistri Georgij peurbachii dum absoluit: & ad ultimū compleere conabatur/ diem clausit extre-
mū Viennæ Anno Christi. 1512. Tertio Calendæ octobres.

MAGISTER GEORGIUS RATZENPERGER Natione bauarus. Vir multarum
rerum cognitione insignitus. Et inter cetera eruditionis suæ documenta in Astronomia adeo excellit:
ut hic doctissimis eius artū uirīs merito connumerandus ueniat.

DOMINVS PAVLVS in monasterio Melicensi Astronomus & Cosmographus p̄spicacissimus.

IOANNES EPPERIES & Erasmus ericius uiri præstantissimi hac etiam tempestate Matho-
maticam cum multorum admiratione docuerunt.

IACOBVS LATERANVS philosophus Astronomus & Poeta. **IOANNES** quoq; fabri-
cius ex Reyßling Philosophus & Astronomus insignes clarent. Hic enī Fabricius meus confrater erat
et alterius lectionis astronomicae merito doctrinæ suæ professor ordinarius.

IOANNES TZERTE Ciuis & senator urbis Viennensis. Vir prudens & industrius: & in ma-
thematicis disciplinis miræ gratiæ: hisq; præsertim quæ ad fundamentalem picturæ & edificationum ra-
tionem pertinent.

ANDREAS KVENHOFER Ex Nuernbergæ/ sub preceptoribus nostris D. Stabio & Stibo-
rio Viennæ in Cosmographia & tota Mathematica adeo profecit: ut per totam Italiam: & præcipue in
urbe ipsa ubi doctissimorum uirorum copia est/ præclarus habeatur. Nec dubium/ quin posteritati ex-
cellenti suo ingenio profuturus sit.

**¶ Ioannes Adibaelis Budoensis Ad excellentē Mathematicum
Andream Buenboffer Ruerbergensem Amicum suum.**

En tibi germano/ qui cœlos astrag nosti,
Nobile Germani dogmatis exit opus
Hoc tu ad cœlestes uteris doctē recessus
Scrutandos: hic est regula certa poli.
Seu rutili stellis conamina prospicis orbis:
Ad cuius rapitur quisq; planeta uices.
Seu uersam in maculas lunam: seu solis ad umbram
Respicis adnexo/ quas parit orbe soror.
Quolatium, Solers usu germania uincit.
Et primos summa hac nutrit in arte uiros.
Nos latio linguam sinimus: reliqua Attica tellus
Addidit, astronomos barbara terra fouet.

GEORGIUS STROLIN Patricius Vlmensis Medicinæ studiosissimus: & in Astronomiā
apprime doctus. Cuius officio & exemplaribus in emendatione geminarū tabularum nonnunq̃ usus
sum. Qui & ob studiorū nostrorū cōformitatē: ultraq; & morum honestatem mihi est coniunctissimus.

¶ Ad Georgiū Strolin patriciū Vlmensem Leonardi coturnini Epigramma.

Gratulor ipse tibi, reliquisq; colende georgi,
Sidera qui passim dicere pulchra solent.
Quod Collimisti cura/ uigilijs labore,
In lucem ueniunt hac monumenta uirum

Quos habuit quondā, pulchra ornāmēta uisna,
(Vt nunc) extimios qualibet arte uiros.
Nouere astrigeros motus: elementa: deosq;
Et quicquid pulchri philosophia tenet.

IOANNES KOLPECK EX RATISBONA Medicinæ Astronomiæq; studiosus. Quia
 astronomica Instrumenta quæcumq; uel ex ære uel ex alio materiali eleganter & artificialiter fabricat.
 ET EGO Præceptorum meorum doctrinam & præcepta imitatus Cathedram in Mathematicis di-
 scipulis annuente Deo & Inuitis. Illustrissimiq; Romanorum Imperatore Maximiliano: iam tene-
 has artes pro mei ingenii uiribus profiteor. Quod si deus coelorum pius arbiter uitam mihi longiorē
 concesserit: urabo ne a tam doctis & exquisitissimis præceptoribus prorsus degenerare uidear.

**Magister Thomas Resch ex Krems Theologus: Poeta:
 Viennens. ecclesie cathedral' canonicus? Viro excellentissimo
 medicinae & mathematices p̄fessori eruditissimo
 Dño Georgio Tannstetter Collimitio
 Magna charitate amico dilecto
 Salutem & Soelicitatem.**



Ostulasti se penumero studio flagranti uir insignis & eruditissime: quorum-
 dam illustrium scriptorū codices uetus os ex publica gymnasiū bibliotheca:
 cui tum custos & instaurator præfuerat: tuis imo publicis uisibus emitterem.
 ut scilicet clarorū scripta ulrorum iam dudum & situ & carie & obliteratio-
 ne squalētia iterum in reditu tua leuicis auram traducere possis. Vnde tuo isti
 tam pio sanctissimoq; desiderio cōtinuo & letus & lubens parui. Totiq; li-
 terario cetui non abnuente uiutorum illustriū de natione germanica: deq; no-
 stro Viennensi gymnasio summe meritorū Georgii p̄urbachii: etiam
 Ioannis de monte regio alemanorū: nostraq; academiæ alumnorū Tabel-
 las geminas Eclypsiū atq; etiam Primi mobilis tuis manib; tuaq; lima ca-
 stigatissima illustrandas. Publicitūq; Calcographorū cura circumferendas emisi. ut habeant eleganta
 uideantq; passim & nostra sæcula & doctissimorum hominū grata posteritas præsignis academiæ: non
 stræ alumnos diuinæ & ingeniosissimæ mathematicos multipliciq; litterarum sapientia floruisse. Desi-
 natq; tandem calumniator malignus splendidulas pauonis pennas fuliginosa coruorum nigricie uelle
 inumbrare. Perge igitur Georgi mi obseruandissime: proq; animi tui dexteritate ad totius & ex publicæ
 commodū ingens: tabellas ipsas multa posteritatis laude dignissimas in lucem profecto. Debent in de
 tibi gratias æternales authoris manes sepulti. Debet & tota illustrium litteratorum turba gymnastica:
 quibus & famam decusq; cum tua ingenti gloria restituere paras. Equidem se penumero sic mecum ipse
 uolebam: & te & Stabium Striborūq; Rosinū: Angelum: Ericium Mathematicos nobiles & multo li-
 terarum splendore nitentes in nostris oris germanicis a deo optimo maximo consensu. ut essent: per
 quos Indlyta & preclarissima Mathematices studia aliquādiu & turpiter & barbare phabira subsisterēt
 et respirarent. Nec te cantina zollorū facies dimoueat ab ceptis tam salubriter auspiciatis. Equidē nosti
 Georgi doctissime uipeream luorum rabiem non nisi penes magna & ardua uersari. Nam summa pe-
 tit luor: perstant altissima uenti. Et petūt summa tela trifidula Iouis. Valeto foelicissimus. Datū Viennæ
 Quartodecimo Kalendas Martias.

¶ Eiusdem Thomae velociani hexasticon in geminas tabellas.

Qui uelis astrigeros mundi specularer orbēs
 Cur toties lateant sidera mœsta polo
 Prospicito geminas arguta mente tabellas.
 Quas Collimitiū prouida cura dedit.
 Euocat hic ueterum ceco phlegetonis ab orco:
 Indlyta ne pereant tot monumenta uisum.

**Joannes Michaelis Budorensis Doctissimo
Mathematicae et Medicinae professori
Dño Georgio Tannstetter Collimi
tio Amico & Patrono, S.D.**



In mihi fuit aninus humanissime simul et

doctissime Collimti, Tabulas primī mobilis Ioannis de Monteregio, Et Eclypsum Georgii Peurbachii/undecūq; conquassitas & elimatas, in communem Germanae industriā frugem & utilitatem tandem emittere. Idq; idipsum ut aliquādo assequerer/difficillimas, deū testor, peregrinationes, et in scribēdo transeundoq; non sane triuiale opus in mihipli uolens imposui, Cum Romae ubi me lactis gallinacei haustum in exemplari uno natum esse confidebam: tum etiam Cracouiae/quam anno superiori ob hanc unicam susceptam prouinciā/etiam dissimulans petieram. Et certius quidē (ut uerum fatear) nihil habebam/q; laborum omnīū omnīūq; occupationū eā in refinem: uotiq; secundos euentus. Verum, ut saepe fit, aliquorum inuidia/qui se solos sapere existimant, & sub tenui etiā palio sapientiae locum esse nō credunt, impeditus/sid quod conabar consequi neuitquā potui, maxime q; homini Astronomiae studioso maximo impedimēto erant. Quorum ego uersutiam & incoctam inuidentiam euitam sensī/q; primū Cracouiam relinquens Viennam perueni: Viennam in qua ad te: qui litteratorū ordinis hominibus liberalis hospes semper fuisti: hisq; praesertim/qui preter terrarum cognitionem coelum etiam ipsum affectant. Qui mihi statim praefatas tabulas/exemplari emendate scripto: et (ut credo/authorū ipsorum diligentia reuiso: cum quadam gratificandi sedulitate ostendebas: nescio an fato: an casu. Fato crediderim: casu minus: propterea q; calypsis antea tibi ceu spiritu quodam fatidi co ductus/ex fecunda liberalium artium bibliotheca: qua multa est emendatorum librorum copia de cerperas: maxima mea letitia. Mirabar enim gymnasiū uestri foelicitatem: q; post tot inclytos Astronomiae professores: inclita etiam ingeniorum monumenta feruare uideretur. Mirabar & tuam sedulitatem: fidem: uigilantiam: quibus ut exirent: imo elimare & integre exirent/que depremta erant opera tua diu noctuq; curasti. Quae me etiam eo diligentia: prouexit: ut studium diligentiam: q; in componendis characteribus: formulisq; caleographicis/ formandis: quibus pluribus iam annis exerceor/ libere fuerim pollicitus. Quid uterq; praeslitterit/ censebunt posterī: deq; nobis longo aetio futurorum iudiciū erit. Id sane de me ausim fateri: Industriā meam/quantulacūq; illa in Siderum & Mathematicae rationibus extat: uires: studium: & diligentiam suscitāt esse: ad eorum in Astronomicis uestigijs laborem/ qui coeli & coelestium rerum sunt studiosi pro uirili iuuandum. Est etenim liber in manib; meis dico & Federici Grisogoni Dalmatae Artū & medicinae doctoris: de Iudiciis natiuitatū Pie memoriae Ioannis Lucilii Hypodamii/alias Santtreiter Heilbrunnei. Praeceptoris quondā nri in hac re cois: ut lectū dignū: ita & memoria & perennitate dignissimū. Quem amplissima minerua/ & plus q; dici queat ingenio sub tili Mundi deus/ dum in humanis fuit ditauerat: ut tuipse ex his quae super sunt in omniēis sub eo orari poteris. Quem nos opera tua auxiliante conformi sedulitate in iuuanda studiosorū sollicitudine comitabimur. Et inter cetera Tabulis ad Planetarum reliquorum motum attinentibus/ euidēcentiori ueritate: et facilitate plus gratiosa: posteris indubie placituris. Quae ut emergant/ eo animo/ quo sunt in fuitura/ sumopere nitimur. Vale doctissime Collimti: meq; qui tui sum studiosissimus/ iugiter ama. Viennae Austriae Anno ab Incarnatione Christi Millefimo quadringentesimo ac quarto decimo, Pridie kalendas Maias.

**Jacobus Spiegel Selenianus Jureconsultus Caes. & Archiducalis Secret.
Ho. iurii in studio Viennensi professor. Ad Germaniam ingeniosam.**

Bombarda, & ratlo precli, quo littera manat,
Vim rari ingenii iam prius edocuit,
At nunc quod numeris praestes sacraeque mathese
Purbaccho, & Iano gratia danda uenit,
Caetera sunt aliis tecum communia, tuis has
Ingenii dotes suspice: Quare pares;

Sebastiani Bunderlij Carmen ad Librum.

I celer, & letus totum te pande per orbem
Qua norint homines uerba latina loqui.
Nam satis es duro, iam tandem pumice tersus:
Et doctis tecum dogmata rara geris.
Te plausu ingenti Latius, te Sarmata bellax
Teque Tagi potor sumet utraque manu.
Et dicent longum sis foelix pulchra Vienna.
Quae tanti profers scripta sepulta uiri.

Nicolaus Gerbelius Pfortzei.

Quid non tentarunt priusci quo noscere possent
Et motus caeli multiplicisque uices,
Nec tantum motus: sed & ingeniosa posuisti
Mensura ex omni cognita parte fuit.
Nec minus emenso uarietate tempora caelo
Astra animos cura detinere graui.
Quid dicam Solem: quid Lunam: quid uaga caeli
Lumina: quae passim lucidus axis habet,
Sed licet ornatus: hos cognouisse patentis:
Philosophi mundi perplacuisse reor.
Quo melius possent excessa mente supremum
Scire opus: & quicquid pulchrior orbis habet.
Magna satis certe sunt haec, maiora sequuntur:
Qui regit hunc orbem edidit cere deum.
His etenim mens sancta modis assurgere praecipit
Nititur: his gradibus regna tonantis adit.

**Ad doctissimum Georgium Tannsteter
Collimitum Artium & Medicinae
doctorem. Et Astronomiae
Viennae professorem Dñm
et Praeceptorem suum
Andreae perlach Stirij Octostichon.**

Astra per aethereos motum uarietate cyclos,
Et certas rerum colligis arte uices:
Nec satis hos, lucem luuat accepisse priores,
Te duce: qui dudum nil nisi nomen erant.
En iterum liber est tectis reuocatus ab umbris
Quo germana suum gloria pignus habet.
Quae tibi se multum debere fatebitur olim:
Inque tuo ponet nomine grata decus.

Emendanda in transcurso errata (tum ob nimiam Calcographorum festinantiam: tum etiam quod simul
totum perspicere aliquid prorsus nequeat: ut in optatis ostendit) subsequuntur.
In tabula distantiae uerae constitutionis aut oppositis a media/notas M numeris introituualibus Argumen-
torum/solis uidelicet in fronte sig. o. & lune in latere descendenti sig. 3. ceu gnomone interceptas in A uerte.
In tabulis aequationis solis numeri laterales tam ascendentes quam descendentes gradus & minuta argumenti solis
ingrediendi offerunt: quae titulis discrepantibus: ut in quarta seu ultima earundem satis liquet.
In tabula distantiae constitutionis uisibilis a uera Ad clima septimum/loco Arietis pisces: & e regione pro pi-
scibus falso titulo arietis positos cernes: puta characteres talium signorum eisdem nobis suprapositi rite indicant.
In tabula ueri motus solis in horis & minutis: in titulo numeris introituualibus in fronte tabulae inserto/loco
Lune ponat Solis: sic uidelicet. Argumenti Solis signa & gradus.
In calce fere exempli eclipys lunaris: canonibus commodatim gra annexi: ubi cum tpe dimidia duratiōis & cum
argumento lunae aequato uerum motum eiusdem in horis & fractionibus ex tabula huiusmodi titulo insignita
elicere tubemur: loco sig. 1. gr. 4. m. 44. ibidem pressorū/denotatiōibus tñ imutatis pone gr. 1. m. 4. fa. 44.
Et si litterae uel numerorum figurae transpositae aut inuersae/uel alia fortassis licet menda occurrerint:
facilis supputatoris labor & bona industria emendare poterit.

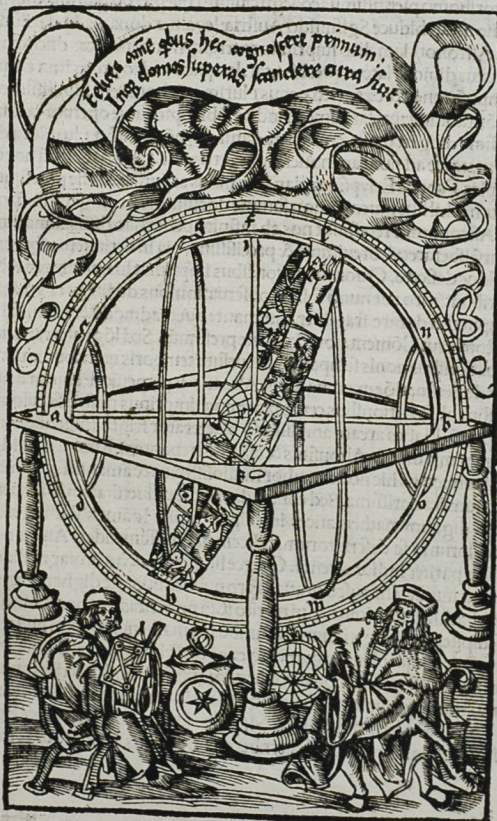
**Præfatio Magistri Andreæ Stiborij Boij in
tabulas Eclipsium M. Georgij peurbachij
Viri Mathematici eruditissimi.**



Mis non gratuletur insigni reipublicae litte-
rarum uestra Rector Decane atque ceteri uiri ornatissimi: quod sine uestri archi-
gymnasii Viennensis tanquam Trolano equo prodierint uiri heroes clarissi-
mi in omni scientiarum genere præpollentissimi. Et ut infinitos sacratissimi
Theologiae summæ pietatis perfectiores atque edificatores Iuriscientiae Medicinæ
Artiumque clarissima lumina taceam: duos impresentiarum tantummodo comemo-
rabo mathematicos excellentissimos: per uniuersum pene orbem non sine summa
gloria & decore uiri archigymnasii proclamatos/Georgij Peurbachij & Ioan-
næ de Monte regio Francum. Nemini dubium esse potest/ tam florētissimam
uniuersitatem habuisse multa ingenia etiam profundissima: quae si sua acumina in res ingenuas & per-
petuo manentes conuertissent magis quam in ea dicta & commentationes quae tunc meliores sunt habitae
pro suo saeculo & cum suo conatu mox euanescent: gloriosum & perpetuum nomen longae posteritati &
multis generibus transmississent. Quemadmodum hi duo praenominati heroes Georgius & Ioannes: quorum
primus secundus præceptor/ homo plentissimus collegii ciuium: collega: ob plurima diuini ingenii sui mo-
numenta annuo stipendio ab archiduce Sigismundo Austriae legaliter donatus. in clarissimas res animi
dies noctesque intendens Astronomiam dico imprimis ceteraque Mathematicas disciplinas uerarum ra-
dicum sapientialium uas: ut diuini Platonis uerbis utar. In quibus adeo profecit: ut tabulas nouas: epi-
tomatas: instrumenta: compositiones: & cetera id genus plurima/ elaborauerit subtilissime: inuenierit quo-
etissimae: correxerit demonstrauit: ut clarissime in indice subseripto suoque operum ex diuersis quod of-
fendere potui singularissima diligentia collecto cernere datur. quod non dubitem multo plura diuini huius uiri
ingenii extare monumenta: quae ad nostram noticiam non peruenire. Quorum omnium hoc unicum (quod
hic impressum est exemplar Tabulae Eclipsium plane omnibus argumentis esse potest/ qualia sint cate-
ra eius uiri lucubrata: cum nihil illic inuentas non summe doctum: non castigatissimum in tam abstruso
atque laborintho totius Astronomiae recessus: ut nos ab infinito pene chaos difficiellinarum in ea re ope-
rationum & intricatissimarum liberaret: & breuissima & precisissima uia in ueritatem usque perduceret: cum
uidisset praefici in precisione deficere. Quod altius cordibus imprimam hi qui tantum Alfonso: Plan-
kinis: & ceteris praeficiis tribuunt (raro aut nunquam solidis observationibus dedit) ut eos minime errare cre-
dant: & eorum scripta sempiterno durare fragiliter autumant: quemadmodum & nonnulli de S. Thomae
alii de Scoto alii de Aristotele aut Commentatore & c. uane presumunt. Sed longe alia ratio in Astronomia
habenda est: ubi observationibus nouis semper per decursum temporis ueteribus inuētis aliquid addi
aut minus oportet. Sicut de declinatione maxima Solis: Almanach perpetuo/ Planetarum motibus/ Motu
octauae sphaerae: & similibus observationibus certis plurimorum: imprimis nostro saeculo a Georgio peur-
bachio liquido est compertum. Habes aream amplissimam blæterator frigidissime: uides tabulam aequa-
tionis Solis nouam/ aliquot minutis ab Alfonso: & aliis discrepantem. Eumne si quid habes non uene-
natum: sed ueritati subnixum: cuius hic noster author studiosissimus & amantissimus fuit. Habes Ioan-
næ de Regio monte monumenta clarissima. Sed contendis/ hodie uniuersitatem Viennensem effecit: tam
et nullum esse qui aliquid dignum mathematices intelligat. Aspice Ioannis stabii Austriaci clarissima
inuenta: quorum nonnullorum a se descriptorum indicem praemissum uides. Aspice nostra lucubrata
quantulacumque in praemissis patiter indice cõtenta. Coerce linguam: occurre magis aliquo tuo aut tuo-
rum nobili inuento: & non inuidebimus: sed gratiam pro publica utilitate dignam magis/ quemadmo-
dum & huius nostro Peurbachio habebimus. Cui merito tota posteritas pro hoc diuino eclipsis opere
et ceteris suis inuētis sempiterno assurgendum: & omnibus in mathematicorum huius archigymnasii
Viennensis catalogo conscriptis. qui plano argumento esse potest: hoc gymnasium nullo unquam tpe doctissi-
mis mathematicis caruisse. Potissimum autem hoc aureo saeculo: quo & ueris literis scribere usus inoleuit: cœ-
pit et Mathematicorum multitudo per uniuersam pene germaniam increbrescere. Claruerunt Vienna præ-
nominati cum doctore Theologiae Ioanne Phortz. Magistro kùpfersperger. Ioanne Epperles. Ioanne
Dorff monacho predicatoris: & aliis plurimis Nuerberge: Barbatus Bernardus cum monacho pre-

dicatore aequino Daco p[re]ceptor[um] meo iulio omnifariam docto. Pambergæ doctor Eberhardus schlei-
finger: c[um] Ioanne melber. Ioannes dalburgius Ep[iscopu]s Vormaci[en]s. In Engelstadio M. Frideric[us]. N. Mg[ister]
Ioannes Angelus M. Ioannes erndorffer. Ioannes auentinus Noricus Mathematica p[re]f[ect]i sunt. Colo-
nia Burchard[us] m[ai]mersloch. In Fr[an]conia Ioannes Lucilius Hypodamus: alias Santtreiter. Qui p[ro]pter
alios quos in Italia Mathematicis disciplinis instituit/ Ioann[em] michael[em] ex nostratib[us] nobis notu[m] reliquit.
Ratisbonæ d[omi]n[u]s Ioannes Toloph[us]. Salisburgæ. N. Burchardus c[on]temp[orane]us Peurbachii. In Tubing[en]s[e]
Ioanes Iustinger. Hai[delberg]æ Ioanes Hassfurt. C[on]st[anti]æ Doc. N. Schinnagel. Augustæ doc. Adolph[us]
Occo. In Lib[er]s Doctor. Ventzlaus ex Buduuey[ensi] medic[us]. Et ceteri innum[er]i: quor[um] noticia me fugit.
Qui diuersis scriptis/ ingeniat[is] & inuentis tota pene Germania illustrauere. Soli uero Peurbachius &
Ioannes ceteros tanq[ua]m duo lumina ceteras stellas suppressi/ gloria summa p[re]cipuere. Signat[er] Georg[us]
ille noster in hoc tabularum eclypsium opere: quo nos a futuris mirabilibus naturæ operibus & pericu-
lis cautissimos reddit[us] & metu liberat: quemadmodu[m] Pericles Atheniensium animos solis obcuratio-
ne territos: & Aristander Darii exercit[u] magno Alexandro insequentem/ & propter eclypsim Luna c[on]-
motum/ causis expositis reuocat & saluat. Mirandum certe est/ homines in tam penetralia summi dei ar-
cana descēdere potuisse: ut hæc mirāda uentura tam certe cognoscere/ & tam longe p[re]uidere ualerent.
Sed de hoc nemo miretur: cum ad hoc creatus sit homo: ut ex contemplatione magnalium dei deum crea-
torem magnificet & benedicat. Iuxta illud Ecclesiastici. xviij. Deus de terra creauit hominē s[ecundu]m imaginē
suam. Et sequitur: Et posuit oculum ipsorum super corda eorum: ostendere illis magnalia operu[m] suoru[m]:
et nomen sanctificationis collaudent: & gloriari in mirabilibus illius ut enarrant magnalia dei.

In carmine Iobitini pro h[uius] ade: veru[m]. H[uius] ade: veru[m]. 1. pro astrigeras astrigenas. 2. p[ro] iabacista hanc lege



q Canones in Tabulas Eclipsium Magistri
Georgij peurbachij Viri perspicacissimi.

Propositio

Prima.



PROPOSITIO CONIUNCTIONIS
vel Oppositionis medie Luminariū: lo
cum Solis: & Argumenta Lune & Latitu
dinis eius media facilliter deprehendere.

Notato tempore annorū Christi & mensium: quod numerat com
pletum usq; ad initium mensis usualis: in quo Coniunctio uel oppo
sitione futura est quam queris: cum annis Christi completis intra tabu
lam mediarum coniunctionū & oppositionū. & si numerū annorum
præcisè non inuenieris in annis collectis: intra primū cum proximo
minori: & ea quæ in directo inuenieris omnia distincte extra scribe.
Deinde cum re duo numero annorū ultra collectos intra in annis expāsis: & similiter in directo eius
reperita sub prius scriptis extra scribe: unūquodq; sub suo genere. Et si ultra annorū numerū habueris
menses completos: cum eis tabulam mensū ingredere: cōmunes quidem si annus curret cōmunis sit
bisextiles autē si bisextilis. & quæ ibi reperies sub prius extra notatis etiam unūquodq; sub suo genere
extra nota. Hæc sic extra scripta coniunge more solito fractionū phisicarum & signorū cōmuniū: atq;
dierum & horarū. Deinde productū ex tempore dierū horarū & minutorū compara in tabella reuolu
tionum tempori alicui in directo tituli coniunctionis si quæris coniunctionē: aut in directo tituli opposi
tionis scripto si quæris oppositionē. Nā eā lineā eiusdē tabellæ: in qua ponit tempus proximo maius
p ducto tui tēporis: quod ex additione pueniat extra scribere oportet supra lineam p ductorū tuorū.
Quæ sic superscripta: ea quæ loci solis: argumentorū lune & latitudinis eius sunt: unūquodq; suo generi
supraposito coniūge: sed p ductū tps a sibi supraposito minue. Tempus itaq; quod facta subtractiōe
manebit erit tps mediæ coniunctionis uel oppositionis quæ sita: ad meridiē Viennensem. Quod si ad
aliū meridianū tempus prædictū uolueris habere: cōsidera distantā alterius meridiani a meridiano
Viennensi. & pro quolibet gradu uersus orientē adde quattuor minuta tempori: pro quolibet autē uer
sus occidentē aufer quattuor minuta a tpe: & factū est. Illud autē tempus coniunctionis uel oppositionis
numerandum est ab initio illius mensis usualis in quo coniunctio uel oppositio futura est quam qua
sisti. Producta autē ex motibus locum solis mediū: argumentū lune mediū: item argumentum lati
tudinis lune mediū ad eandem coniunctionē uel oppositionē mediam indicant.

Propositio

Secunda.



AUGEM SOLIS INUENIRE. Cum annis christi cōpletis ad tempus tui
norū numero: & in eius directo inuenies augē solis ad tēpus cū quo intrasti cōpletū.
Iuxta quoq; inuenies motū augis in uno anno. Qd si super sunt adhuc anni cū quib;
nō intrasti: pro quolibet anno adde augē ibi inuentā motū augis in anno semel. Vi
debis etiā p motū in anno diuissum in duodecim aequalia quantū moueat in uno mē
se usuali. Item diuidendo motum in mense p tria habebis motū augis in decē diebus. Vnde facile tibi
patere potest aux solis ad quamcūq; coniunctionē aut oppositionē luminariū. Nam si ultra annos ha
bueris menses & dies: adde pro quolibet mense motū augis in mense semel: & pro quibuscūq; decē
diebus motum augis in decem diebus.



**Tempus vere coniunctionis vel oppositionis luminariū
faciliter cognoscere.** Ex pmissis primū habes tps mediæ coniunctio-
nis aut oppōnis talē locū solis & argumentū lunæ
mediū & augē sol ad idē tps. Ausē ergo augē sol a loco sol medio & remanēs uoca-
bis argumentū sol. Cōsidera itaq; argumentū lunæ an fuerit minus sex signis an plus.
Si minus: qre uigna & gradus argumentū sol in tabul' distātiæ ueræ coniunctiōis aut oppōnis a mediā in
parte supiori tabularū: signa autē & gradus argumentū lunæ in pte sinistra. Si autē fuerit plus: qre eadē
signa argumentū solis in pte inferiori tabularū: signa uero & gradus argumentū lunæ in pte dextra. Et si
utruq; argumentorū tā sol' q' lunæ pscē iueneris: in angulo cōi cor' reple hōs & minuta distātiā ueræ
coniunctiōis aut oppōnis a mediā: addendā qdē ad mediā coniunctiōis aut oppositionē si ab angulo
cōi uersus argumentū solis quo intrastrī eundo primo occurrat A. minuendā autē si primo occurrat M. Si
autē neutrū argumentorū pscē iueneris: intrabis cū p'ime minorib; in tabulā: & angulū cōem extra
nota cū signo suo principali A uel M quod p'imo occurrat uersus argumentū solis quo intrastrī eundo
ut dictū est. & hui' angulū cōis ad duos angulos p'ime sequētes fm argumentū sol' & lunæ p'ime ma-
iōra in tabula descripta cōsiderabis distas, qm̄ una erit sol': scilicet illa q' est inter angulū cōem & angu-
lū laterālē cōrrespondēte argumentū solis p'ime maiori in tabula. Altera erit lunæ: scilicet q' est inter cōem
angulū & angulū supiōrē aut inferiōrē scilicet cōrrespondēte argumentū lunæ p'ie maiori in tabula. De
distā sol' sūme partē p'portionalē fm p'portionē sup'ius in argumentū sol' ultra illud cū quo intrastrī ad
duos gradus. eāq; p'tē p'portionalē ad angulū cōem extra notatū: si dexter aut sinister angulus scilicet
argumentū sol' p'ime maiōris in tabula maior fuerit angulo cōi extra notato. aut minue si fuerit minor
Sist de distā sūme p'tē p'portionalē fm p'portionē minūorū in argumento lunæ ultra gradus ad
60. minuta. Eāq; p'tē adde ad angulū cōem extra notatū: si sup'ior uel inferiōr angulus scilicet argumē-
ti lunæ p'ie maiōris in tabula maior fuerit angulo cōi extra notato. aut minue si minor. & qd sic pue-
nerit erit distātiā ueræ coniunctiōis aut oppōnis a mediā: addēda uel minuēda fm signū suū p'cipale
Illud tñ notādū est: q' si acciderit signū A uel M ē iuxta angulū cōem: tūc ad hūc distātiā sol' oportet
cōsiderare si signū A uel M angulū cōis: scilicet qd p'ie occurrat eūdo uersus argumentū sol' ab angu-
lo cōi fuerit idē cū signo angulū laterāl': scilicet cōrrespondēte argumentū sol' maiori: tūc distā habebis: si sub-
trahis angulū cōis ab angulo laterāl': aut ecōuerso. & de pte p'portionalī fiat ut prius dictū est: addēdo
eā uel minuēdo. Sed si fuerit alteri' manerit: ut si signū angulū cōis fuerit A. & angulū laterāl' fuerit M.
aut ecōtra. tūc p' distā hūc oportet angulū cōem sūgere cū angulo laterāl'. & tūc pars p'portional' tal'
distē sp' est minuēda ab angulo cōi extra notato. Sist ad hūc distā distāam lunæ oportet cōsiderare: si int' angu-
lū cōem & p'ximū supra uel infra: scilicet angulū cōrrespondēte argumentū lunæ maiori: nullū signū A uel
M incidit: tūc distā habebis subtrahēdo unū angulū ab alio: minorē a maiore. & de pte p'portionalī
fiat ut sup'ius tactū est: addēdo eā uel minuēdo. Si autē medlaret inter eos signū A uel M. tūc p' distā
hūc oportet ambos angulos cōsūgere. & tūc pars p'portional' tal' distā sp' est minuēda ab angulo cōi
extra notato. Et qm̄ acciderit q' utraq; pars p'portional' est minuēda: tūc pri' sibi inuicē addant: & de
inde cōsūctim minuant. Itē si ambe addēdē: tūc sibi inuicē cōsūgant: & distē addant. Et si una addē-
da fuerit: altera minuēda: demat' minor a maiore: & de residuo fm titulū maiōris fiat. Et si aliq' partū
p'portionalī: siue aggregatū ex eis: seu residuū unius earū minuēdū esset ab angulo cōi: nō possit
qula angulus eo minor esset. tunc fiat ecōtra: angulus auferat' ab eo qd esset minuēdū: & residuū notē
signo alteri' manerit q' angulū cōis habuit: & tenebis p' distātiā ueræ coniunctiōis aut oppōnis a mediā.
Multa uerba: sed opus breue est. Habita itaq; distātiā ueræ coniunctiōis aut oppōnis a mediā: si hēt no-
tā A. sūge eā cū pte medle cōiunctiōis aut oppōnis. uel minue eā ab eodē si hēt M. & pueniet tps ueræ
cōiunctiōis aut oppōnis q'sitū dieb; nō eq'tis. Vocat autē illud tps sic inuētū tps coniunctiōis aut oppo-
sitiōis ueræ primo examinari. qd stat esse p'ssum oīno. stat etiā esse ppe p'ssum. nunq' tñ a p'sso differ-
re potest distā sensibill'. Verū si certior in hac re fieri uoles: ad tps sic inuētū eq' solē & lunā: ut infra do-
cebo. Et si iueneris ueros cor' mortuo tpe coniunctiōis: aut uerū sol' & nadir lunæ tpe oppōnis i signis
gradib; & minutis & secundis cōcordare oīno p'ssum fuit tps primo examinari. Sed si differentia sit

si bene prius operatus es/ea ultra tria minuta esse non potest. Differētia igitur illa in minutis & secundis duplica/ & sient minuta & secunda temporis. Hæc itaq; minuta & secunda tēporis/ si sol lunā in conjunctione/ aut sol nadir lunæ in oppōne antecedit/ adde tēpori primo examinato. uel minue ab eo si sequat. hoc est adde si uerus locus solis maior fuerit uero loco lunæ/ aut loco nadir lunæ/ minue si minor. & habebis tēpus ueræ coniūctionis aut oppōsitionis secūdo examinatu. Quod si iterū simill modo uelis examinare/ potes quidē: sed nō est necessariū. nam errare nō poteris in uno minuto temporis.

Propositio

Quarta.



Medios motus solis: lunæ: argumenti lunæ: & capitis draconis reperire.

¶ Notato tēpore christi quod numerat cōpletū usq; ad instans pro quo hæc scire uoles: sūme radicē talis motus seu christi seu ad annū dñi. 1400. cōpletū: ut i tabula mediog motuū notatū uides: & eam extra scribe. Deinde cū residuo tēpore quod a radice tua sumpta transiuit usq; ad instans tuū intra tabulas easdem in annis & mēsisibus diebus horis & minutis. & ea quæ in tabula motus quæ quæris in directio horum inuenies radici extra notatæ subscribe/ unūquodq; suo generi. Et intrando in tabulam annorū prius intra cum mīno/ ri propinquiori. & si quid in annis adhuc residui erit/ cum eo quoq; aut minori propinquiori intrabis: ita diu donec annos omnes euacues. Item si annus currens cōis fuerit/ intrabis in menses cōmunes: si bīsextilis in bīsextiles. Tabula etiam horarū pro minutis temporis deferuit. sed tunc respiciendus est titulus inferior. Postq; cum toto tempore residuo tabulas intrasti: & quæ ibi inuēta sunt radici subscripsisti: adde subscripta cum radice/ unūquodq; suo generi/ more fractionū phisicari: scilicet pro. 60. secundis unū minutū ponendo: pro. 60. minutis unū gradū: pro. 30. gradibus unū signū. Et si. 12. excrecēt signa 12. abiciant. & quod ex tali additione exierit erit motus quæsitus ad meridianū Viēnensem. Quod si ad aliū meridianū prædicta uoles habere/ muta solum radices motuū. nam hic positæ sunt ad Viennā. Cōsidera nāq; distantia alterius meridiani a meridio Viēnensi: & pro quolibet gradu sūme q̄tuor minuta temporis. & cum eo tempore intra tabulā talis motus: & motū sibi correspondēte pro meridiano occidentali adde radici hic positæ: pro orientali uero deme: & factum est. In tpe uero cōtrariū facias

Propositio

Quinta:



Ule verificare.

¶ Ad tps tuū pro quo uoles habere uerū locū sol' habeas. augere a medio motu: & remanebit argumentū solis ad idem tēpus. Cum eo argumento intra tabulam æquationis solis/ quæ dō gradus & minuta argumenti in parte sinistra: & signa argumenti superius: si signa argumenti fuerint pauciora sex. Aut gradus & minuta argumētū in parte dextra: & signa in parte inferiori: si fuerint plura sex. Et si gradus & minuta argumenti solis præesse inuenieris: tunc in angulo cōmuni habebis æquationem quæsitā. Cuius notam A uel M inuenies iuxta signa argumenti cū quibus tabulam intrasti. Quod si gradus & minuta argumenti solis præesse nō inuenieris: quare minores propinquiores: & in angulo cōmuni extra scribe æquationem cum nota sua A uel M. Deinde iuxta æquationem sumptam uidebis quid correspondeat unī minuto argumētū. Illud totiens sūme/ quot habes minuta in argumento ultra ea cum quibus intrasti: & productum adde ad æquationem extra scriptam/ si proxime sequens æquatio in tabula sūm processum numeri graduum cum quibus intrasti maior fuerit: aut minue si minor: & proueniet æquatio solis quæsitā. Quam iunge medio motū si habet A notā. aut minue si habet M. & exhibit uerus locus quæsitus. Hanc autē æquationis tabulam de nouo componere placuit/ propterea q; ea quæ in tabulis alfonsinis habentur præcisione careant. Voluit eam etiam sequentem quæ lunæ est per decē minuta in lineis numeri augere: ut facilius esset operatio propter partes portionales sūmendas.

Propositio

Sexta.



Unam ad equare. Ad instans pro quo locum lunæ uerum habere uoles

ex præmissis habebas medios motus solis: lunæ: & argumenti lunæ. Subtrahes itaq; medium motum solis a medio motu lunæ: & residuū duplicat: & fiet centrum lunæ. Cum quo intra tabulas æquationū lunæ/quarendo signa superius: & gradus & minuta in sinistris lateribus descendendo. Aut signa inferius: & gradus & minuta in lateribus dextris ascendendo. Quod si gradus & minuta centri præcise inuenieris/habebis in angulo cōi æquationem centri & minuta proportionalia: quæ extra notabis. Et si gradus & minuta centri præcise non inuenieris/ut minori propinquiori intrabis. & per partem proportionalem sumptam de tota differentia fm proportionem residuorum minorū centri ad decē minuta æquabis æquationē centri. Eam addes argumento medio/ si iuxta signa cētri cum quibus intrasti scriptum sit Centrū addit. Aut minue si ibi scriptum est Centrum minuit. & exhibet argumentum lunæ uerum. Cum quo similiter intrabis ut cum centro fecisti. & in angulo cōmuni accipies diuersitatē diametri: & æquationē argumenti. Et si præcise non inuenies gradus & minuta argumenti/ intrares cum minori propinquiori: & uideres id quod in eo loco correspondet uni minuto argumenti. Id totiens sumeres/ quot sunt in argumento minuta residua: & productū æquationi argumenti adderes/ si proxime sequens æquatio fm processum numeri graduū cum quibus intrasti maior fuerit. aut minues si minor. & quod exst æquatio argumenti primo examinata. Deinde de diuersitate diametri accepta sūme partem proportionalem fm proportionē minorum: proportionalis prius seruatorū ad sexaginta minuta. Et hanc partem addes æquationi argumenti primo examinata: & proueniet æquatio argumenti ultimo examinata. Quam iunges medio motui lunæ/ si iuxta signa argumenti scriptum sit Argumentū addit. Aut minue ab eo/ si scriptū ibi sit Argumentū minuit. & exhibet uerus locus lunæ quæsitus.

Propositio

Septima.



Verum locum solis: argumentū lune equatum: item argumentum latitudinis lune equatum ad instans vere coniunctionis aut oppositionis breuiori uia inuestigare. Etq; dies non equatos ad eq̃tos reducere. Hæc ualeat

du in eis cōtentus sis quæ ex tribus primis propositionibus repperisti. Cum argumento solis tēpore mediæ coniunctionis uel oppositionis inuenito intra tabulam æquationis solis/querēdo æquationē eius/ ut in quinta dictum est. Quam signabis per notam A uel M iuxta signa argumenti solis repperit. Deinde cum distantia ueræ coniunctionis aut oppositionis a media intra tabulam ueri motus solis in horis & minutis/quarendo eandem distantiam in parte sinistra: & superius argumentū solis ueniens. & illud quod in angulo cōmuni inuenies extra scribe. Et si bis intrandum est/ bis intrabis. Quod autē sic inuenieris/ est uerus motus solis in tempore prædictæ distantie. Hunc signabis per notā qua signata fuit distantia ueræ coniunctionis a media aut oppositionis. Post considera si hæc duo: scilicet æquatio solis atq; motus distantie fuerint eiūdem notæ: tunc ea coniūge. Si fuerint diuersarum: minores a maiore deme. Et si iunxisti/ productum signa per notam priorem amborū. Vel si unū ab altero minuxisti: residuū signa per notam maioris a quo facta est subtractio. Quod itaq; prouenit/ si habet A/ adde cum loco solis medio: item cū argumento latitudinis lunæ medio ad tps mediæ coniunctionis aut oppositionis repperis. Vel minue ab eisdem si habet M. & exhibet locus solis uerus: & argumentū latitudinis lunæ fere equatū ad tps ueræ coniunctionis aut oppositionis. Ideo autē dixi fere æquatum. nam non potest differre ab æquato plus q̃ duobus minutis. Quod accidit propter motum capitis in tempore distantie ueræ coniunctionis aut oppositionis/ media. Ideo si uoles motum capitis mediū in tempore talis distantie: minue adhuc/ si dista

ta habet M. aut adde si habet A. & erit recte æquatum. Item ad tempus ueræ coniunctionis aut oppositionis quatuor medium motum capitis. Cui coniungas uerum motum lunæ: & exhibit argumentum latitudinis lunæ æquatum ad ueram coniunctionem aut oppositionem. Item cum distantia ueræ coniunctionis aut oppositionis a media intra tabulam medi argumenti lunæ in horis & minutis: & quod ibi inuenies extra scribe. Et eadem extra scripto pro qualibet hora distantia nouem minuta coniunge. & productum adde ad argumentū lunæ medium tempore media coniunctionis aut oppositionis inuenito: uel ab eodem minue: sicut iudicium notæ prædictæ distantia: & proueniet argumentum lunæ æquatum ad tempus ueræ coniunctionis uel oppositionis. Si tū illis contentus esse nolles: æquales omnia hæc: ut in quinta & sexta traditum est. Præterea cum uero loco solis ad tempus ueræ coniunctionis uel oppositionis inuenito intra tabulam æquationis dierum: superius querendo signum: & in latere sinistro gradum: & inuenies in angulo cōmuni æquationem dierum: scilicet minuta & secunda temporis. quæ coniunge ad tempus coniunctionis aut oppositionis ueræ diebus non æquatis: & proueniet uera coniunctio aut oppositio diebus æquatis.

Propositio

Octaua.



Tempus visibilis coniunctionis: atq; diuersitate aspectus in latitudine ad idem tempus indagare.

Ex prioribus habes ueram coniunctionē diebus æquatis: locum uerum solis: & argumentum lunæ æquatum ad idem tempus. Tabulas igitur distantia uisibilis coniunctionis a uera: quæ tuo climati deseruiunt: siue sexto siue septimo: intra cum signo solis: querendo in eadem tabula signi solis a parte sinistra horas & minuta distantia ueræ coniunctionis diebus æquatis a meridie. In parte uero ante meridiem: si coniunctio fuerit ante: aut post meridiem si fuerit post. In parte autē superiori in lineis transuersalibus quæ res signa argumenti lunæ. In angulo namq; cōmuni eorum reperies horas & minuta distantia uisibilis coniunctionis a uera: & minuta diuersitatis aspectus in latitudine. Quod si horas & minuta distantia coniunctionis ueræ diebus æquatis a meridie: atq; argumentum lunæ æquatum præcisè non inuenieris: intra sub argumento lunæ proxime minori in tabula reperto: & cum horis & minutis proxime minoribus in linea numeri inuentis. & quod in angulo cōmuni positum est de tempore & diuersitate latitudinis extra scribe. Post intra bis cū argumento quo prius: & cum numero horarum & minorum proxime maiori in tabula reperto. & eorum quæ in angulo cōmuni ponuntur: ad ea quæ extra scripsisti notabis differentias uniuscuiusq; ad genus suum. Et de illis differentiis sūmenda sunt partes proportionales sicut proportionem residui distantia coniunctionis ueræ a meridie ultra illud tempus cum quo primo intraisti ad excessum horarum & minorum cum quibus secundo intraisti: super horas & minuta cum quibus primum fecisti introitum. Et pars proportionalis temporis addenda est tempori extra scripto: si tempus anguli cōmunis secundi maius fuerit tempore extra scripto: minuenda uero si minor. Similiter pars proportionalis diuersitatis latitudinis addenda est diuersitati extra scriptæ: si diuersitas anguli cōmunis secundi maior fuerit: minuenda uero si minor. Item intra bis cum horis & minutis quibus primo intraisti: & cū argumento lunæ proximo maiori in tabulam. & eorum quæ in hoc angulo cōmuni ponuntur: ad tempus & diuersitatem quæ extra scripsisti notabis differentias. De quibus sūmenda sunt partes proportionales sicut proportionem graduum argumenti lunæ ad 30. gradus. Et pars proportionalis temporis addenda erit tempori extra scripto: si tempus huius anguli tertii maius fuerit tempore extra scripto: aut minuenda si minor. Similiter pars proportionalis diuersitatis latitudinis addenda erit diuersitati extra scriptæ: si diuersitas anguli tertii maior fuerit diuersitate extra scripta: minuenda uero si minor. Parte itaq; proportionali quæ addenda est: adita: & quæ minuenda est diminuta: proueniet distantia uisibilis coniunctionis a uera: & diuersitas latitudinis. Et hoc ad principium signi cuius tabulam intraisti. Quod si sol non fuerit in principio signi sui: tunc simili modo ut iam dictum est intra dū erit in tabulam signi sequentis: & recipienda erit distantia uisibilis coniunctionis a uera cum diuersitate latitudinis. Postea harum duarum distantiarum similiter harum duarum diuersitatum differentia uidenda sunt: & de eis accipienda partes proportionales sicut proportionem numeri graduum loci solis ultra signa integralia ad unum signum: hoc est ad triginta gradus. Et pars proportionalis temporis addenda erit tempori ad principium signi solis: si tem,

pus sequentis signi maius fuerit, aut minuenda si minus. Similiter pars proportionalis diuersitatis addenda erit diuersitati ad principium signi solis: si diuersitas sequentis signi maior fuerit: aut minuenda si minor, exhibitq; distantia uisibilis coniunctionis a uera: & diuersitas latitudinis, quæ serua. Sed in his hæc cautela obseruanda est: q; si ambo introitus tam in tabula ad principium signi solis/q; in tabula ad initium signi sequentis fuerint utrobique supra lineam nonagesimi gradus ab ascendente: aut utrobique infra, tunc differentia temporum habebitur subtrahendo minus a maiore. & de ea sumenda est pars proportio nalis: & cum ipsa agendum ut dictum est, & exhibet distantia coniunctionis uisibilis a uera cum nota A, si introitus factus est infra nonagesimū gradum ab ascendente. Aut cum nota M si supra: ut satis titulus ad eæ res indicat. Sed si acciderit unū introitū esse supra nonagesimū gradum: & in tabula alterius signi infra, tunc quæ tempus in una tabula repertum fuerit addendum: aliud uero minuendum: ideo differentia habebitur: si ambo tempora consuegerint. & de coniuncto sumenda est pars proportionalis sicut proportionem numeri graduum solis ultra principium signi sui ad unū signū: hoc est ad triginta gradus. Et hæc pars proportionalis subtrahi debet a tempore principii signi solis: si potest. & residuū habebit notā A uel M, ut habebat introitus in tabulam principii signi solis. Si uero nō posset subtrahi: fiat e contra: tempus disticta ad principii signi solis auferatur a parte proportionali, & residuū habebit notā A uel M: ut habebat introitus in tabula signi sequentis. Quod itaq; sic prouenerit: erit distantia uisibilis coniunctionis a uera. Si habet notam A adde eam tempori ueræ coniunctionis diebus æquatis. Aut minue eā si habet M, et proueniet tempus coniunctionis uisibilis diebus æquatis.

Propositio

Nonā.



Dea solis & lune ueræ: & argumentum latitudinis uerū ad tempus uisibilis coniunctionis inquirere.

Cum tempore distantia uisibilis coniunctionis a uera intra tabulam ueri motus solis in horis & minutis, & sub argumento solis ad tempus ueræ coniunctionis inuenito aut sibi uiciniori in tabula in angulo cōmuni motum descriptum extra nota. Et si bis intrandum erit: bis intrabis. Hunc motum adde cum uero loco solis tempore ueræ coniunctionis: si fuerit A cum distantia uisibilis coniunctionis a uera. Aut minue eundem ab eodem si sibi fuerit M, & exhibit uerum locum solis tempore uisibilis coniunctionis. Item cum eodem tempore distantia uisibilis coniunctionis a uera intra tabulam ueri motus lune in horis & minutis, & sub argumento lune ad tempus ueræ coniunctionis prius habito aut sibi uiciniori in angulo cōmuni motum lunæ repertū extra scribe. Et si bis intrandū fuerit: bis intrabis. Hunc motum extra scriptum ad locum uerum lunæ tempore ueræ coniunctionis adde uel minue: sicut iam de sole fecisti, & proueniet uerus locus lunæ tempore uisibilis coniunctionis. Illud idem quoq; quod iam in angulo cōmuni repertum habuisti de motu lunæ adde cum argumento latitudinis lunæ æquato tempore ueræ coniunctionis: uel minue ab eodem: sicut de sole & luna fecisti, & proueniet argumentum latitudinis lunæ æquatum ad tempus uisibilis coniunctionis. Quod si his contentus esse nolles: poteris hæc omnia æquare per tabulas æquationum solis & lune & motus captis: ut in quinta sexta & septima doctrinis ostensum est. Sed non inuenies diuersitatem tantam in hoc opere & alio: quæ possit errorem immittere.

Propositio

Decima.



Latitudinē lune uisam tempore uisibilis coniunctionis perscrutari.

Ex octaua habes diuersitatem aspectus in latitudine ad tempus uisibilis coniunctionis: quam seruari iusseram. Nunc uero reperies latitudinem lunæ ueram. Cum argumento latitudinis lunæ æquato ex præmissa ad tempus uisibilis coniunctionis intra tabulam latitudinis lunæ in eclipibus: quæ et do signa eius superius: & gradus & minuta directe sub signis. Aut signa inferius: & gradus & minuta

directe supra signa. tunc enī in directo graduū & minorū argumentū latitudinis habebis latitudinē lunæ uerā ab eclipctica. quæ erit eius partis aut septentrionalis: aut meridiana: prout titulus iuxta signū argumenti latitudinis tui superius aut inferius indicat. Qua latitudine habita: si fuerit meridiana: coniūge eā diuersitati aspectus in latitudine seruare superius: eo q̄ in omni regione ultra secundū clima uersus actos semp sit diuersitas in latitudine meridiana: & exhibit latitudo lunæ uisā: quæ erit partis meridiana. Si autē latitudo lunæ uera fuerit septentrionalis: tunc subtrahē eam a diuersitate aspectus in latitudine: si diuersitas fuerit maior latitudinis uera. & residuū erit latitudo lunæ uisā: & partis meridiana. Sed si latitudo uera septentrionalis fuerit maior diuersitate aspectus in latitudine: subtrahē diuersitatem a latitudine uera: & remanebit latitudo lunæ uisā: & partis septentrionalis.

Propositio

Undecima.



Eclypsis solis in coniunctione fiat cognoscere: et quantitatē eius & durationē: principii quoq; et finem ex tabulis calculare.

Alpice latitudinē lunæ uisā ex præcedenti repertam ad tempus uisibilis conjunctionis. Si ea fuerit plus q̄. 34. minuta: nō expectes eclipsem solis. Sed si minor fuerit eclipsis solis. Ideo si sol fuerit augi uicinior q̄ longitudini suæ media: id est dū argumentū solis fuerit minus uno signo. 15 gradibus: aut plus. 10. signis. 15 gradibus: intra tabulā eclipsis solis existentis in auge eccentrici: & est prima. Si autē fuerit uicinior alteri longitudinū mediarū q̄ augi aut opposito eius: id est dū argumentū solis fuerit plus uno signo. 15 gradibus: & minus 4. signis. 15 gradibus. Similiter dum fuerit plus. 7. signis. 15 gradibus: & minus. 10. signis. 15 gradibus: tūc intra tabulā eclipsis solis existentis in longitudine media eccentrici: & est secunda. Sed si sol fuerit uicinior opposito augi: quod fit dum argumentū eius est plus. 4. sig. 15 gradibus: & minus. 7. signis. 15 gradibus: tūc intra tabulā eclipsis solis existentis in opposito augi eccentrici: & est tertia. Intra itaq; tabulā suā cū minutis latitudinis lunæ uisā: quærēdo ea a sinistris deorsum: & supius cū argumento lunæ tpe ueræ conjunctionis habito. et in angulo cōiueniens puncta eclipctica & tempus casus. Et si propter gradus argumenti lunæ cū duplici introitu intrandū sit dupliciter intrabis: accipiendo de differētis partes proportionales smp proportionē graduū argumenti lunæ ad 30. gradus: & eas addes aut minuas: ut fieri solet in reliquis. Tamen si solūmodo cū uiciniori intrabis: nihil sensibilis accidere poterit erroris. Puncta scinuenta ostendunt quanta pars diametri solis nobis eclipfabitur. Imaginamur enī totā diametruū esse. 12. puncta. Si igit habes. 22. puncta in tabula reperta: totus sol eclipfabitur. Si sex: medietas diametri. Si. 4. tertia pars. Si. 3. quarta pars. Si. 2. sexta pars. Si. 1. duodecima. & sic de aliis. Tempus uero casus est tempus quod est a principio eclipsis usq; ad eius mediū. Tantū etiā nūc supponimus a medio esse ad finē. Coniunctio autē uisibilis est mediū eclipsis. Ideo si tps casus minuisti a tpe coniunctionis uisibilis: habebim; principii eclipsis. Sed si tempori coniunctionis uisibilis superaddideris tēpus casus: exhibit finis eclipsis. Et si tempus casus duplicabitur: proueniet eclipsis duratio.

Propositio

Duodecima.



Latitudinē lune uisā ad principii atq; finē eclipsis investigare.

Latitudinis uisæ pro tpe uisibilis conjunctionis: quod nūc mediū eclipsis supponit: p tabulā latitudinis lunæ repas argumentū uisum intra dō easdē tabulas cū latitudine uisā. & in directo eius uersus dextrā si fuerit iuxta ea ut draconis: accipe gradus & minuta sub. 0. signo: dū latitudo uisā fuerit septentrional. Aut accipe gra. & min. sup. 11. signa: si latitudo uisā fuerit meridional. Vel si fuerit iuxta caudā: accipiendo gra. & min. sub. 6. signa: si latitudo uisā fuerit meridional. Aut accipiendo gra. & min. supra. 5. signa: si fuerit septentrional. Et tale argumentū uocat argumentū uisum seu argumentū latitudinis lunæ uisæ tpe mediæ eclipsis. hoc serua. Deinde cū tpe casus intra tabulā ueri motus lunæ in hora. & quod ibidē sub argumento lunæ repis: aufer ab argumento latitudinis uisæ iam seruato: & manebit argumentū latitudinis lunæ uisæ ad initii eclipsis. Cū quo quæras in tabula latitudinē lunæ: quæ erit tibi latitudo lunæ uisæ ad initii eclipsis. Itē illud idem quod iam minuisti adde sup idem argumentū latitudinis lunæ uisæ ad mediū eclipsis: & exhibit argumentum latitudinis lunæ uisæ ad finem eclipsis. cū quo quæras in ta

bula latitudinē lunæ: quam tenebis pro latitudinē lunæ ad finem eclypsis.

Propositio

xiiij.



Semidiametros solis et lune uisuales ac umbre in loco trāsitus lune demonstrare.

Tabulā semidiametrorū intra cū argumēto solis: aut sibi proxime uiciniorū: & in eius directo reperies quantitatē semidiametri solis uisualis. Itē cū argumēto lunæ æquato in eadē tabula inuenies semidiametri lunæ uisualē ac semidiametri umbræ. Sed hæc semidiameter præsupponit solem esse in auge ecclitici. Quod si nō fuerit: cum argumento solis accipe uariationē umbræ: & eam a semidiametro umbræ iam reperta deme: & manebit semidiameter umbræ in loco transitus lunæ. Hæc necessaria est in eclypsi bus lune/non solis.

Propositio

xiiij.



Quantitatē partis obscurate ac totius eclypsis solaris figurā ad uisum depingere.

In superficie plana p̄trahat lineā rectā. In cuius medio statuat p̄ctus tanq̄ cētū. A quo uersus unā ei⁹ extremitatē officio circuli sumant tot ptes equalēs quot sunt minuta in aggregato ex ambabus semidiametris solis & lunæ. Et si in aggregato ultra minuta essent scda: fm earū p̄portionē ad unū minutū addat etiā portio unius ex partibus. aut si scda excedunt. 30. pro eis unū minutū accipe. nihil enī erroris quod curandū esset ex hoc fiet. Deinde sup centro statuto fm quantitatē aggregati semidiametrorū tanq̄ semidiametri fiat circulus: qui dicitur circulus aggregati semidiametrorū solis & lunæ. qui iam diuisus est p lineā primo p̄tractā in duo æqualia. Ea quidem lineā rectā habeat uice portionis eclypticæ. Et eius pars sinistra habeat orientalis: dextra occidentalis. Hanc sup centro secet alia orthogonaliter. ea tñ nō sit uisibilis: sed occulta. Hæc oculta est loco portionis circuli transeuntis p polos zodiaci & locū solis in eclyptica. Huius pars superior habeat meridianā: inferior septentrionalis. Postea fm quantitatē semidiametri solis uisualis sup priorē centro fiat circulus: qui superficie solis repræsentabit. Deinde signabis in lineā occulta duo p̄cta. Vnū quidē a centro distans fm quantitatē latitudinis lunæ uisæ ad initium eclypsis. Aliud a centro distans fm quantitatē latitudinis lunæ uisæ ad finē eclypsis. Et quodlibet istorū distet a centro uersus eam partē: aut meridianē aut septentrionis: ut latitudo uisæ fuerit. A puncto aut latitudinis uisæ ad initium eclypsis ducat parallela eclypticæ: uidelicet linee primo p̄tracte usq; ad circūferentiā circuli maioris in parte occidentali. Et punctus sectionis huius parallele cum circūferentiā circuli maioris significat locū cētū lunæ: uisum ad initium eclypsis. Similiter a puncto latitudinis uisæ ad finē eclypsis ducat parallela usq; ad circūferentiā circuli maioris in parte orientali. Et punctus sectionis huius parallele cum circūferentiā circuli maioris significat locū cētū lunæ: uisum ad finē eclypsis. Duc etiā lineā rectā a loco cētū lunæ uisū in principio eclypsis ad locū eius in fine eclypsis. Hæc significat iter lunæ ab initio eclypsis ad finē. Eam p mediū æqualiter diuide. & punctus mediū significabit locū cētū lunæ in medio eclypsis. Vitimo fm quantitatē semidiametri lunæ uisualis in tribus locis centroꝝ lunæ: scilicet principiū mediū & finis eclypsis fiant tres circuli super ea tria centra: qui repræsentabunt lunam in principio medio & fine eclypsis. Quantum itaq; mediū eorum de circulo solis occupabit: tantum proportionabiliter de superficie corporis solis eclypsabitur.

Propositio

xv.

Quantitatem eclypsis lune: durationē eius: p̄ncipiū

quoq; & finē ipsius discernere.

Pris habes tempus oppositiōis ueræ diebus æquatis: argumentū lunæ æquatis: atq; argumētū latitudinis æquatis ex sexta & septima doctrinis. Nunc cum

argumento latitudinis lunæ intra tabulâ latitudinis lunæ: & inuenias eius latitudinē ut in decima dictū est. Quā cū sua parte nota: nam est latitudo lunæ uera in hora ueræ oppositionis. Quæ si fuerit plus q̄ sexagintaquinque minuta non expectabis eclip̄sim lunæ. Quod si minor fuerit intra cum ea in tabulam eclip̄sis lunæ in illam dico tabulam quæ deserviat loco solis. Nam si sol fuerit uicini⁹ augi q̄ longit⁹ dini sui eccentrici mediæ in tabulis tabulam eclip̄sis lunæ sole existente in auge. Si autē uicini⁹ fuerit longit⁹ dini mediæ q̄ augi aut eluso opposito: intra tabulam eclip̄sis lunæ sole existente in longitudine mediæ. Sed si uicini⁹ sit opposito augis q̄ longitudini mediæ: intra eam dicitur tabula eclip̄sis lunæ sole existente in opposito augis eccentrici. Intra in quâ tabulam suam quærendo latitudinem lunæ a finit⁹ stris: & argumentū lunæ superius: & in angulo cōmuni inuenies puncta eclip̄tica: tempus casus: & tempus moræ dimidiæ: si moram habet. Et si propter gradus lunæ in argumento dupliciter intrandum sit: aut propter secūda in latitudine lunæ ultra minuta: facies id more solito. Puncta itaq; ostendunt quantā pars diametri lunæ nobis eclip̄setur. Nam si præcise duodecim sunt puncta: tota luna eclip̄sabitur: sed sine mora. Si pauciora duodecim: pars tm̄ eclip̄sabitur. Tanta quidem portio de diametro obscurabitur: quanta puncta inuenta sunt pars de duodecim. Si uero plura fuerint puncta de duodecim: tota luna eclip̄sabitur cum mora. Et significant q̄ si luna adhuc maior esset: ita q̄ diameter sua tot haberet puncta quot sunt inuenta in tabula adhuc tota eclip̄saretur: sed sine mora. Tempus uero casus si nō habet moram est tempus a principio eclip̄sis usq; ad medium. & tantum etiam supponitur nunc a medio ad finem. Ideo ipsum aufer ab oppositione uera diebus æquatis prius habita: & remanebit initium eclip̄sis. Item ipsum eidem adde: & habebis finem. Item duplicatum facit durationem. Sed si moram habuerit eclip̄sis: tunc tempus casus est tempus ab initio eclip̄sis usq; ad principium totalis obscuratiōis. Et tempus moræ dimidiæ est tempus ab initio totalis obscuratiōis ad medium eclip̄sis. quod nūc instans oppositiōis ueræ diebus æquatis supponimus. Ideo tempus dimidiæ moræ deceptum a tempore oppositiōis ueræ relinquit principium totalis obscuratiōis. Et additum eidem efficit finem totalis obscuratiōis. Et duplicatum ostendit totalis obscuratiōis durationem. Item tempus casus & dimidiæ moræ simul sublatum a tempore ueræ oppositiōis indicat principium eclip̄sis. Et superadditum eidem ostendit finem. Et duplicatum demonstrat durationem ab initio eclip̄sis usq; ad finem.

Propositio

xvi.



Latitudinem lune ueram ad initium eclip̄sis similiter ad finem eius ostendere.

Cum aggregato temporum casus & dimidiæ moræ constructore intra tabulam uerū motus lune in horis & minutis. & sub argumento lune in angulo cōmuni reperies uerum motum lune in dicto tempore. Eum ab argumento latitudinis lune ad ueram oppositiōem equato deme: & remanebit argumentum latitudinis lune ad initium eclip̄sis. Cum quo in tabula latitudinis lune queras latitudinem lune ueram ad initium eclip̄sis. Item eundem motum adde argumento latitudinis ad ueram oppositiōem: & proueniet argumentum latitudinis equatum ad finem eclip̄sis. Cum quo similiter queres in tabula sua latitudinē lune ueram ad finem eclip̄sis: & habebis intentum.

Propositio

Decimaseptima.



Eclip̄sis lunaris habitudinem in plano figurare.

Sicut in pictura solaris eclip̄sis dictum est in superficie plana trahatur linea recta que teneatur pro portione eclip̄tica. cuius medius punctus sit centrum umbre in loco transitus lune. A quo uersus unam extremitatem linee sumantur officio circuli tot partes quales quot sunt minuta i aggregato semidiametrorū umbre & lune. Et fm̄ hanc quātitate aggregati semidiametrorum super centro fiat circulus. & super

Exemplum

eodem centro alius s^m quantitate semidiametri umbre: qui habeatur pro circulo umbre. Et sint in hac figuratone quatuor partes mundi Oriens: Occidens: Meridies: Septentrio: ut in figura eclipsis solaris. Item linea occulta orthogonaliter portione ecliptice secans super centro circulorum. In qua similiter duo puncta a centro distantia s^m latitudines lune ueras ad principium & finem eclipsis signentur: & uersus eas partes: meridiem aut septentrionem ut latitudines Ipse sunt. Et ab illis punctis ducantur parallele linee priori. Prima quidem a puncto signante latitudinem lune ad initium eclipsis uersus occidentem. Alia a puncto signante latitudinem ad finem eclipsis uersus orientem. Et incidentie earum cum circumferentia maioris circuli notentur: quia significat loca centri lune ad initium & finem eclipsis. Et illa duo loca per rectam lineam copulentur. que per medium puncto diuidatur: quod signat locum lune in medio totalis obscuracionis. Super illa tria puncta s^m quantitate semidiametri lune uisualis fiant tres circuli: lunam in principio medio & fine significantes. Quantum autem de medio eorum intra circulum umbre cadit: ita proportione ab illis de luna nobis eclipsabit. Si enim totus intra cadit: tota luna obscurabitur. Si pars eius intra cadit: pars quoque talis de luna eclipsabitur.



Primū q^d de eclipsi solari dicta sunt exēpla subicere.
 ¶ Volo inuenire coniunctionem ueram atq^{ue} eclipsim que fiet anno domini millesimo quadringentesimo sexagesimo currete: in mense Iulio. Tempus igitur numerationis annorum Christi usq^{ue} ad initium mensis Iulii usualis predicti completum est mille q^udringenti & quinquagintanouem anni: & mensis Iunius. Cum quo quidem tempore dum intrauero tabulas mediarum coniunctionum & oppositionum solis & lune: primo in annis collectis apud. 1440. inuenio de tempore dies septem: horas octo: minuta triginta octo: secunda uiginti septem. De loco solis signa nouem: gradus. 11. minuta. 37. secunda. 14. De argumento lune signa duo: gradus. 23. minuta. 26. secunda. 44. Et de argumento latitudinis signa quattuor: gradus. 24. minuta. 58. secunda. 59. Deinde etiam in annis expansis apud. 19. reperi de tempore dies uiginti octo. horas uiginti: minuta duodecim: secunda sex. De loco solis signa. 11. gradum. 0. minuta. 58. secunda. 21. De medio argumento lune signa nouem: gradus undecim: minuta octo: secunda sexdecim. De argumento latitudinis signa. 11. gradus. 6. m. 53. secunda. 42. Postea quia annus currens est bisextilis: intro in tabulam mensium bisextilium cum Iunio: & inuenio de tempore dies quatuor: horas decem et nouem: minuta triginta quinque: secunda quadraginta duo. De loco solis signa quinque: gradus uiginti quattuor: minuta triginta octo: secunda uiginti quinque. De argumento lune signa quinque: gradus quattuor: minuta quinquaginta quattuor: secunda tria. De argumento latitudinis signa sex: gradus quattuor: minutum unum: secunda uiginti tria. His tribus ordinibus in unum iunctis: unoquoque suo generi/exit de tempore dies. 41. hora. 0. minuta. 26. secunda. 15. De loco solis signa duo: gradus septem: minuta quattuordecim: secundum nullum. De argumento lune signa quinque: gradus nouem: minuta uiginti nouem: secunda tria. De argumento latitudinis signa decem: gradus quinque: minuta quinquaginta quattuor: secunda quattuor. Et quia uolo coniunctionem: quero in tabella reuolutionum in directu tituli coniunctionis tempus quod proxime maius aggregato temporis superius inuēti reperit ibi: & inuenio dies quinquagintanouem: horam unam: minuta uiginti octo: secunda sex de tempore. De loco solis signum unum: gradus uiginti octo: minuta duodecim: secunda quadraginta octo. De argumento latitudinis signum unum: gradus. 21. minuta. 38. secun. 1. De argumento latitudinis lune signa duo: gradum unum: minuta uiginti: secunda uiginti octo. Hunc igitur ordinem subscribo ordini prioris aggregati: unoquoque suo generi: & iugo motus motibus. sed tempus inferius a superius scripto subtrahō. & erit de tempore dies decem et octo: hora una: minutum unum: secunda. 51. De loco solis signa quattuor: gradus quinque: minuta uiginti sex: secunda quadraginta octo. De argumento lune signa septem: gradum unum: minuta septem: secunda quattuor. De argumento latitudinis signum nullum: gradus septem: minuta quattuordecim: secunda triginta duo. Est ergo coniunctio solis & lune media quā quesimus die Iulii decimo octaua: hora post meridiem prima: minuto. 1. & secundo. 51. ad meridianum Viennensem. Et ad idem tempus locus solis medius est signa. 4. gra. 5. minuta. 26. secun. 48. Argumentū lune medium signa. 7. grad. 1. m. 7. fa. 4. Et argumentum latitudinis medium signū. 0. gradus. 7. m. 14. secunda. 32. Nunc pro auge solis habenda cum predicto tempore numerationis annorum christi intro tabulam augis solis: & apud. 1455. inuenio signa. 3. gra. 0. minuta. 46. secunda. 18. Et motum in anno. 34. secunda. quem quater sumo pro quattuor annis: facit minuta. 2. secunda. 16. Et pro sex mensibus. 17. secunda. Et

Eclipsis Solis.

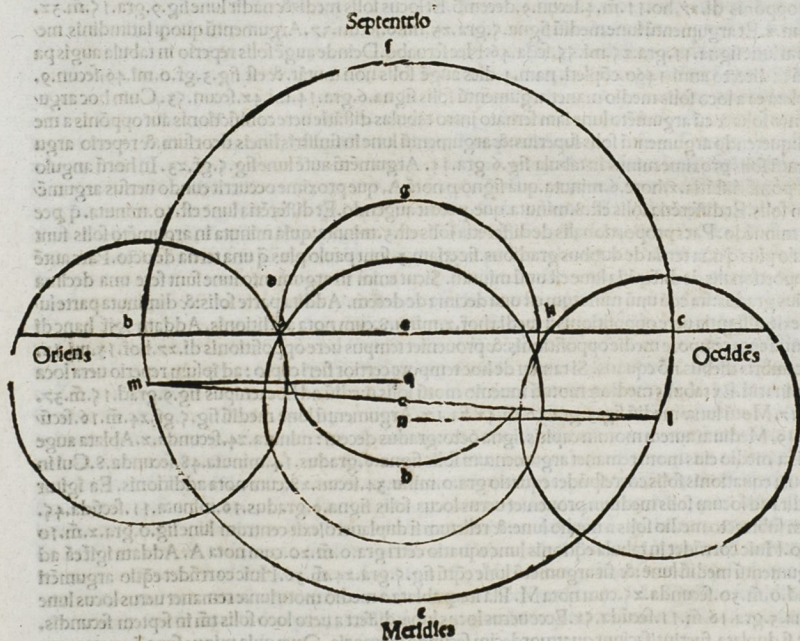
pro. 18. dieb⁹. 2. fa. Est igitur aux solis ad conjunctionē mediā fig. 3. gra. 0. m. 48. fa. 53. Hanc aufero ex loco solis medio: & relinquitur argumentū solis fig. 1. gra. 4. m. 37. fa. 55. Cū argumento hoc solis: & argumento lunæ priori fig. 7. gra. 1. m. 7. secun. 4. intro tabulas distantie ueræ conjunctionis aut oppōnis a media/querēdo argumentū solis in parte inferiori: eo q̄ argumentū lunæ plus est sex signis. & argumentū lunæ in parte dextra ascendendo. Reperio aut argumentū solis proxime minus signum. 1. gradus. 4. Argumentum aut lunæ proxime minus signa septem gra. 1. In horum angulo cōmuni ponitur horæ sex. minuta. 56. Nota autē quæ ab angulo cōmuni uersus argumentū solis procedendo primo occurrit est M. Item differentia solis est sex minuta. quæ procedunt augendo. Item differentia lunæ est octo minuta. quibus similiter augetur angulus argumenti lunæ proxime maioris. De differentia solis pars proportionalis est duo minuta. quia triginta octo minuta in argumēto solis sunt fere una tertia de duobus gradibus. Item de differentia lunæ pars proportionalis est unum minutū. quia septem minuta in argumēto lunæ sunt fere octaua pars unius gradus. Et quia ambæ partes proportionales sunt addenda: cōsurgit igitur distantia ueræ conjunctionis a media horæ. 6. minuta. 59. cum nota M. Ideo ipsa subtracta a tpe mediæ conjunctionis remanet tempus ueræ conjunctionis dī. 17. hor. 18. m. 3. fere Iulij diebus nō æquatis. De quo quidē tpe si certior fieri cuplo: æquatē ad idem tempus solem et lunam. Intrando igitur tabulas mediorū motū inuenio ad hoc tempus medium motum solis fig. 4. gra. 5. m. 9. fa. 36. Mediū motum lunæ fig. quattuor. gradum unū. minuta. 36. secūda. 48. Argumentum lunæ signa. 6. gra. 27. minuta. 19. fa. 2. Medium motū capitis signa octo. gradum unū. minuta. 46. secūda. 47. Item aufero augem solis a medio eius motu: & fiet argumentum solis signum unum. gradus quattuor. minuta. 20. secūda. 43. Cum hoc inquirō æquationem solis in tabula: & est gradus unus. minuta undecim. secūda quattuor minuenda. Relinquitur ergo uerus motus solis signa quattuor. gradus tres. minuta. 58. secūda. 32. Item dempto medio motu solis a medio motu lunæ remanet signa undecim. gradus uiginti sex. minuta uiginti septē. secūda duodecim. Hoc duplicatum facit signa undecim gradus uiginti duos. minuta quinquaginta quattuor. secūda uigintiquattuor. centrum lunæ. Cum hoc in tabula æquationis lunæ inuenio æquationem centri gradum unū. minuta tria: minuendam. Ea itaq̄ ablata ab argumento medio remanet fig. 6. gradus. 26. minuta. 16. argumentum lunæ æquatū. Huius correspondet æquatio argumenti in tabula grad. 2. minu. 21. secun. 45. addenda. Addita igitur ad medium motum lunæ facit signa. 4. gradus. 3. minuta. 58. secūda. 33. uerum motum lunæ. Qui differt a uero motu solis tm̄ in uno secundo. Quæ si duplices faciunt duo secūda temporis: scilicet tricesimam partem unius minuti in hora. quæ pro nihilo ponēda sunt. Quare si dimississem illud examen: in nullo fuisset error habitus. Sum tamen certior factus. Est itaq̄ consuetio uerissima ut inuenta est die. 17. hora. 18. minuto. 3. fere Iulij diebus non æquatis. Postea si illud examen non fecissem pro loco ueræ conjunctionis reperire do facilliter cum argumento solis tempore mediæ conjunctionis: scilicet cum signo. 1. gradibus. 4. m. 37. secun. 55. intra idē tabulam æquationis solis: & in angulo cōmuni ponitur æquatio gra. 1. m. 11. secun. 36. minuenda. Item cum tempore distantie ueræ conjunctionis a media: scilicet cū sex horis. 59. minutis intro tabulam ueri motus solis. & sub argumento solis uiciniori scilicet sub uno signo inuenio motum uerum solis in dicto tempore. 16. minuta. 40. secūda. Quia tempus distantie fuit minuendum coniungo cum æquatione/facit gra. 1. minuta. 28. secūda. 16. quæ demo a medio motu solis tempore mediæ conjunctionis: & relinquitur signa. 4. gradus. 3. minuta. 58. secūda. 32. uerus locus ueræ conjunctionis. Beceper hanc uiam breuem reperi id quod superius. Illud idem minuo quoq̄ ab argumēto latitudinis medio tempore mediæ conjunctionis reperto. minuā etiam motum capitis mediū in prædicta distantia: qui est fa. 56. & relinquetur argumentum latitudinis lunæ uerum tempore ueræ conjunctionis: scilicet signū. 0. gradus. 5. minuta. 45. fa. 20. Idem quoq̄ prouenisset si medium motum capitis tempore ueræ conjunctionis: scilicet signa octo. gradū unū. minuta. 46. secūda. 47. coniunxissem uero loco lunæ tempore ueræ conjunctionis: scilicet fig. 4. gra. 3. m. 58. fa. 33. Nam ex horū additione prouenit fig. 0. gra. 5. m. 45. fa. 20. Pro argumēto quoq̄ lunæ rectificando intra idē tabulam mediū argumēti lunæ cum tempore distantie: scilicet sex horis. 59. minutis. ibiq̄ ponuntur gra. 3. minu. 48. secūda. 5. Huius consuetissem pro qualibet hora distantie nouem minuta: & prouenisset gradus. 4. minuta. 51. Et quia distantia habuit notam M. dempsissem id ab argumento lunæ medio tempore mediæ conjunctionis: scilicet a fig. 7. gra. 1. m. 7. & remansisset fig. 6. grad. 26. m. 16. argumentū lunæ æquatū ad tps ueræ conjunctionis. Ecce qualiter duplici uia idem temp inueniūt. Præterea cum loco solis uero tpe ueræ conjunctionis intro tabulam æq̄ solis directū: & inuenio. 12. m. q̄ coniungo tpe ueræ conjunctionis nūc habito: qd.

Exemplum

erat diebus non æquatis. & exit tempus coniunctionis uera diebus æquatis di. 17. ho. 18. m. 15. Iulii. Nunc pro coniunctione uisibili confidero distantiam huius temporis a meridie. & est. 5. hore. 45. mi. Et quia uolo inuenire quantitatē huius eclipfis ad Viennam: intro tabulas distantia coniunctionis uisibilis a uera: q̄s ordinati ad clima septimū: eo q̄ Vienna in medio fere septimi climatis est. Intro itaq̄ in tabulam Leonis: quod est signum Solis: querēdo horas ante meridiem: & superius in lineis transuerſis albus argumentum Lunæ. & in angulo cōmuni (facta aequatione per partes proportionales) reperio de tempore horam unam: minutā. 24. & de diuersitate latitudinis. 38. minutā. Similiter facio ingrediēdo tabulam signi sequenti: scilicet uirginis. & inuenio de tempore horam unā: minutā. 36. & de diuersitate latitudinis. 28. minutā. Differentia itaq̄ temporum est. 12. minutā. & differentia diuersitatum est 10. m. Et quia sol ultra principiū Leonis est fere quattuor gradib⁹: & sunt quasi octaua pars unius signi. ergo & pars proportionalis differentia temporum duo minutā fere: & pars proportionalis differentia diuersitatum unū minutū. pars quidē temporis addenda: sed pars diuersitatis minuenda. Erit itaq̄ distantia uisibilis coniunctionis a uera una hora. 26. m. & minuenda: ut titulus a dextris positus indicat. Diuersitas autē latitudinis æquata erit triginta septem minutā. quæ meridionalis est in nostris climatib⁹ semper. Subtrahō unam horam. 26. minutā a uera coniunctione diebus æquatis: scilicet diebus. 17. horis. 18. m. 15. Iulii. & manet dies. 17. hore. 16. m. 49. Iulii: diebus æquatis. & hoc est tps uisibilis coniunctionis. Deinde cum tempore iam dicto: scilicet hora una. minutis. 26. intro tabulam ueri motus solis in horis & minutis. & sub argumento solis reperio motum. m. 2. secun. 28. Et quia tempus erat dimisurum: minūa quoq̄ hunc motum ex uero loco coniunctionis: & remanet signa quattuor. gradus tres. minutā quinquaginta quinq̄. secundum nullum uerus locus solis in uisibili coniunctione. Similiter cum eodem tempore intro tabulam ueri motus lunæ in horis. & sub argumento lunæ in dicto tempore reperio minutā. 51. secunda. 29. quæ diminuo similiter a uero loco coniunctionis: & habeo signa quattuor. gradus tres. minutā septem. secundum nullum locum lunæ in uisibili coniunctione. Item minūa quoq̄ 51. minutā. 29. secunda ab argumento latitudinis æquato pro uera coniunctione: scilicet a signo. o. gradibus quinq̄. minutis. 45. secundis. 20. & remanebit argumentum latitudinis æquatum ad horam uisibilis coniunctionis. & est signum nullum. gradus quattuor. minutā. 53. secunda. 44. Cum hoc argumēto latitudinis in tabula latitudinis lunæ quæro latitudinem: & inuenio eam gra. o. minū. 26. septentrio nalem. Diuersitas autē latitudinis superius inuenta fuit triginta septem minutā meridionalis. Aufeto itaq̄ minus a maiore: scilicet latitudinem a diuersitate: & manebunt undecim minutā. Tanta est latitudo lunæ uisibilis & meridionalis in uisibili coniunctione. Præterea ut cognoscām si eclipſis fiat: & quantæ quia sol est uicini⁹ augi q̄ longitudini mediæ eccentrici sui: intro tabulam eclipſis solis existentis in auge eccentrici sui sub argumento lunæ æquato uicini⁹: scilicet septem signis: & cum latitudine lunæ uisibilis nouem minutis. & inuenio in angulo cōmuni puncta octo. minutā. 35. & tempus casus hor. o. m. 55. Eclipſabuntur itaq̄ in colis Viennæ de diametro solis paulo minus q̄ tres quartæ. Et initium eclipſis erit die decima septima. hora quita decima. minuto quinquagesimo quarto Iulii: scilicet triginta quinq̄ minutis fere ante ortum solis. Medium erit hora sextadecima. minuto quadragesimo nono. Finis uero hora decima septima. minuto quadragesimo quarto. Postea cum latitudine lunæ uisibilis scilicet undecim minutis meridiana intro tabulam latitudinis lunæ: querēdo latitudinem undecim minutorum. In cuius directo ponuntur supra. 11. signa gradus. 27. minutā. 53. eo q̄ est meridiana: & iuxta caput draconis. Est ergo argumentum latitudinis uisæ in hora uisibilis coniunctionis Signa undecim. gradus uiginti septem. minutā. 53. hoc seruo. Deinde cum tempore casus triginta quinq̄ minutis intro tabulam ueri motus lunæ in horis & minutis sub argumento lunæ uicini⁹: scilicet septem signis: & inuenio uerum motum lunæ in dicto tempore casus triginta octo minutā. Hæc aufero ab argumēto latitudinis uisæ iam habito: & remanebit argumētum latitudinis uisæ ad initium eclipſis: & est fig. 11. gra. 27. minutā. 20. Huius latitudo in tabula ponitur. 14. minutā. similiter meridiana. Item iungo eundem motum uerum lunæ cum argumento latitudinis uisæ seruato: & proueniet argumentū latitudinis uisæ ad finem eclipſis: scilicet undecim signa. uiginti octo gradus. uiginti sex minutā. Huic correspondet in tabula latitudinis latitudo meridiana octo minutis. Habes itaq̄ latitudinē uisam ad initium eclipſis. 14. m. Ad finem uero octo minutā. & semper meridiana. Deinceps in tabula semidiametrorū cum argumēto solis reperio semidiametrum solis uisualem. m. 15. secunda. 47. Et cum argumēto lune reperio semidiametrum lune uisualem. m. 17. secunda. 48. Sed omīssis secundis: quia nihil erroris in formando figuram eclipſis ingerunt: dicamus semidiametrum solis uisualem esse sexdecim minutā. & lune. 18. minutā.

Eclýpsis Lunarís.

¶ **Figura Eclipsis Solaris Anno Christi. 1460. currète.**



Exemplum



El q̄ de eclipſi lunari dicta ſunt exēplo declarare.

¶ Volumus inuenire oppoſitionem ueram luminarium: & eclipſim lunæ quæ fiet anno domini. 1460. currente: in menſe decembris. Tempus numerationis chriſti tranſactum uſq; ad initium illius menſis uſualis eſt anni. 1459. et nouember uſualis Cum quo quidem tempore dum intrauerō tabulas conſtictionum & oppoſitionū mediarum primo in annis collectis. 1440. ibi inuenio de tempore dies. 7. horas. 8. minuta. 38. ſecunda. 27. De loco ſolis ſigna. 9. gradus. 11. minuta. 37. ſecūda. 14. De argumento lunæ ſigna. 2. gra. 23. m. 26. fa. 44. & de argumēto latitudinis ſigna. 4. gra. 24. m. 58. fa. 59. hac extra ſcribo. Item in annis expāſis in directo. 19. reperio de tēpore dies. 28. ho. 20. m. 12. fa. 6. De loco ſolis ſig. 11. gra. 0. m. 58. fa. 21. De argumēto lune ſigna. 9. gra. 11. m. 8. fa. 16. De argumēto latitudinis ſigna. 11. gra. 6. m. 55. fa. 42. Hec ſimiliter extra ſcribo ſub prius extra notatis: unūquodq; ſub ſuo ſimili. Deinde quia annus currens eſt biſextilis: Intro tabulam menſium biſextiliū cum nouembre: ibi inuenio de tēpore ſigna. 10. gra. 3. m. 55. ſecūda. 26. De loco ſolis ſigna. 10. gra. 20. m. 10. ſecūda. 26. De argumēto lune ſig. 9. gra. 15. m. 59. ſecūda. 6. De argumēto latitudinis lune ſigna. 11. gf. 7. m. 22. ſcda. 31. Hec quoq; ſub priorib; extra ponā ordinib;. Hos tres ordines aggregabo: puenietq; in tpe dies. 46. ho. 8. m. 45. ſcda. 59. In loco ſolis ſig. 7. gra. 2. m. 46. ſecun. 1. In argumento lune ſig. 9. gf. 18. m. 34. ſcda. 6. In argumēto latitudinis autē ſig. 3. gra. 9. m. 15. ſcda. 12. In tabella uero reuolutionū in directo ſolis oppoſis quia quero oppoſitionē tps proxime malus tpe meo inuenit di. 73. ho. 19. m. 50. ſecun. 8. Et de loco ſolis ſig. 2. gra. 12. m. 46. ſecun. 1. De argumēto lune ſig. 8. gra. 4. m. 32. ſcda. 31. De argumēto latitudinis ſigna. 8. gra. 16. m. 40. ſcda. 34. Eundē igit ordinē extra ſcribo ſupra aggregatū meū: tps quidē ſupra tps: & motus ſub motib; uel ſupra: & motus iungā motib; tps autē dīminuā ex tpe: & exiit tps me die oppoſis di. 27. ho. 11. m. 4. ſecun. 9. decemb. Et locus ſolis mediꝝ & nadir lune ſig. 9. gra. 15. m. 32. ſecun. 2. Et argumētū lune mediꝝ ſigna. 5. gra. 23. m. 6. ſecun. 37. Argumētū quoq; latitudinis mediꝝ lune ſigna. 11. gra. 25. m. 55. ſcda. 46. Hec ſeruabo. Deinde auge ſolis reperio in tabula augis paratā in directo anni. 1460. cōpleti. nam. 4. dies auge ſolis non mutāt. & eſt ſig. 3. gf. 0. m. 49. ſecun. 9. Ablata ea a loco ſolis medio manet argumētū ſolis ſigna. 6. gra. 14. m. 42. ſecun. 53. Cum hoc argumēto ſolis & cū argumēto lune ſam ſeruato intro tabulas diſtāte uere conſtictionis aut oppoſis a media: querendo argumētū ſolis ſuperius: & argumētū lune in ſiniſtris lineis deorſum. & reperio argumētū ſolis proxime minus in tabula ſig. 6. gra. 14. Argumētū autē lune ſig. 5. gf. 23. In horū angulo cōi ponit diſtātia. 2. hore. 6. minuta. quā ſigno p notā A. que proxime occurrīt cundo uerſus argumētum ſolis. Et diſtātia ſolis eſt. 8. minuta. que pcedit augendo. Et diſtātia lune eſt. 10. minuta. q̄ pcedit minuēdo. Pars proportionalis de diſtātia ſolis eſt. 3. minuta: quia minuta in argumēto ſolis ſunt paulo plus q̄ una tertia de duobus gradibus. ſic etiam. 3. ſunt paulo plus q̄ una tertia de octo. Pars autē proportionalis de diſtātia lune eſt unū minutū. Sicut enim in argumēto lune ſunt ſete una decima unius gradus: ita etiā unū minutum eſt una decima de decem. Ad dita parte ſolis: & diminuta parte lune exit diſtātia uere oppoſitionis a media hor. 2. minu. 8. cum nota additionis. Addam igit hanc diſtātiā cum tempore medie oppoſitionis: & proueniet tempus uere oppoſitionis di. 27. hor. 13. m. 12. decembris diebus nō equatis. Si tamen de hoc tempore certior fieri cuplo: ad ipſum reperio uera loca luminariū. Ex tabulis medioꝝ motū inuenio motū ſolis mediꝝ ad hoc tempus ſig. 9. grad. 15. m. 37. fa. 17. Motū lunæ mediꝝ ſig. 3. gra. 16. m. 42. fa. 12. Argumētū lune mediꝝ ſig. 5. gf. 24. m. 16. ſecūda. 19. Medium autem motum capitis ſigna octo: gradus decem: minuta. 24. ſecunda. 2. Ablata auge ſolis a medio eius motū remanet argumētum ſolis ſigna. 6. gradus. 14. minuta. 48. ſecunda. 8. Cui in tabula equationis ſolis correſpōdet equatio gra. 0. minu. 34. ſecun. 28. cum nota additionis. Ea igitur addita ad locum ſolis medium proueniet uerus locus ſolis ſigna. 9. gradus. 16. minuta. 11. ſecūda. 45. Item ſubtracto medio ſolis a medio lune: & relictum ſi duplauero/exiit centrum lune ſig. 0. gra. 2. m. 10. fa. 0. Huic corriſpōdet in tabula eq̄tionis lune equatio cētri gra. 0. m. 20. cum nota A. Addam igit ea ad argumētū mediꝝ lune: & ſit argumētū lune eq̄tū ſig. 5. gra. 24. m. 36. Huic corriſpōdet eq̄tio argumētū grad. 0. m. 30. ſecunda. 2. ſcū cum nota M. Illa itaq; ablata a medio motū lunæ remanet uerus locus lune ſigna. 3. gra. 16. m. 11. ſecūda. 52. Ecce uerus locus lunæ diſſert a uero loco ſolis tū in ſeptem ſecundis. que ſi duplicata fuerint/faciunt quattuordecim ſecunda temporis. Quæ loco minus ſunt q̄ quarta pars unius minuti/pro nihilo reputo. Ergo omiſſo hoc examine non fuiſſet error. tamen certior factus iha

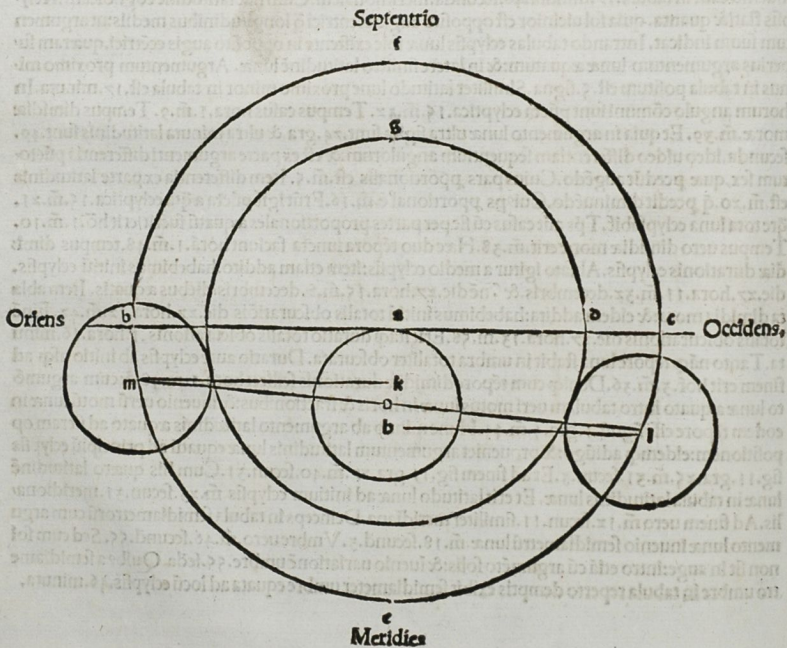
Eclipsis Lunaris.

beo oppositionem uerissimā: quæ Inuenta est die. 27. hora. 13. m. 12. decembris diebus non æquatā.
 Pro uero loco solis in oppositione si nō rectificassem solem in iuc intrassem cū argumēto solis tempore
 mediæ oppositionis tabulam æquationis solis: ibiq; inuenissem æquationē solis gra. 0. m. 34. fa. 17.
 cum nota A. Item cum tempore distantia ueræ oppositionis a mediā & cū argumēto solis intrassem
 in tabulam uerī motus solis in horis & minutis: ibiq; inuenissem motū solis gra. 0. m. 5. fa. 22. similiter
 cum nota A. quia distantia talem notam habuit. Coniuncta hæc duo faciūt gra. 0. m. 39. fa. 44. cum no
 ta A. hæc lunæ in medio loco mediæ oppositionis: & exiisset locus uerus solis in uerā oppositione
 signa. 9. gra. 16. m. 11. fa. 46. Hæc breui uia repperissem id quod supradictum. Illud idem scilicet gradū. 0.
 m. 39. fa. 44. cum medio motu capitis in tempore dictæ distantia: scilicet cum. 14. secundis iungo argu
 mento latitudinis medio tempore mediæ oppositionis: proueniet signa. 11. gra. 26. m. 35. secūda. 47.
 argumentū latitudinis uerū tempore ueræ oppositionis. Quod si alia uia examinare placet: superius
 habui mediū motū capitis fig. 8. grad. 10. m. 24. secun. 2. & uerum locum lunæ seu nadir solis signa. 3.
 grad. 16. m. 11. fa. 45. Hæc duo coniuncta faciunt signa. 11. grad. 26. m. 35. secūda. 47. quod iterum
 cum priori concordat. Pro argumēto quoq; lunæ rectificando in intrassem tabulam mediū argumētū
 lunæ cum distantia prædicta: ibiq; inuenissem motum sibi correspondentem fig. 0. gf. 1. m. 9. fa. 40.
 Huic addidissem pro qualibet hora distantia. 9. minuta: faciunt. 19. minuta. et exiissent fig. 0. gra. 1.
 m. 28. secūda. 40. Hoc totum addidissem ad argumentum lunæ medium in mediā oppositione ha
 bitum: & exiisset argumentum lunæ æquatum ad ueram oppositionem fig. 5. gra. 24. m. 35. scda. 17.
 quod etiam superiori uia similiter repperi. Nam licet uno minuto sit distantia: ea tamē nihil erroris
 efficere potest in rebus sequentibus. Præterea cum loco solis uero tempore ueræ oppositionis intro ta
 bulam æquationis dictum: ibiq; reperio æquationem dictum octo minuta. ea iungo cum tempore ue
 ræ oppositionis diebus non æquatis: & exibit tempus ueræ oppositionis diebus æquatis dies. 27. hor.
 13. m. 20. decembris, & illud ut nunc supponimus medium eclipsis esse. Postea opus est habere latitu
 dinem lunæ ueram, eam reperio cum argumēto latitudinis æquato ad tempus ueræ oppositionis: &
 inuenio eam in tabula. 17. minuta. 46. secūda. meridionale. Cum hac latitudine cognoscā si ecy
 psis fiat: & quanta. quia sol uiciniior est opposito augi eccentrici q̄ longitudinibus mediis: ut argumē
 tum suum indicat. Intrando tabulas eclipsis lunæ sole existente in opposito augi ecētrici. quartam su
 perius argumentum lunæ æquatum: & in latere sinistro latitudinē lunæ. Argumentum proximo mi
 nus in tabula positum est. 5. signa. Similiter latitudo lune proximo minor in tabula est. 17. minuta. In
 horum angulo cōmuni sunt puncta ecliptica. 15. m. 32. Tempus casus hora. 1. m. 9. Tempus dimidiæ
 moræ. m. 39. Et quia in argumēto lunæ ultra signa sunt. 24. gra. & ultra minuta latitudinis sunt. 49.
 secūda. Ideo uidetur differentiam sequentium angulorum. & est ex parte argumenti differentia p̄dicto
 rum sex. quæ p̄cedit augēdo. Cuius pars p̄portionalis est. m. 5. Item differentia ex parte latitudinis
 est. m. 20. q̄ p̄cedit diminuēdo. Cuius pars p̄portionalis ē. m. 16. Erūt igit p̄dicta æq̄ta ecliptica. 15. m. 21.
 q̄re tota luna eclipsabit. T̄ps aut casus cū sic per partes proportionales æquatū fuerit: erit hō. 1. m. 10.
 Tempus uero dimidiæ moræ erit. m. 38. Hæc duo tēpora iuncta faciunt horā. 1. m. 48. tempus dimi
 diæ durationis eclipsis. Ablato igitur a medio eclipsis: item etiam addito: habebimus initium eclipsis.
 die. 27. hora. 11. m. 32. decembris. & 9. nē die. 27. hora. 15. m. 8. decembris: diebus æquatis. Item abla
 ta dimidiā mora: & eidem addita: habebimus initium totalis obscuratiōis die. 27. hora. 12. m. 42. Finē
 totalis obscuratiōis die. 27. hora. 13. m. 58. Erūt itaq; duratio totalis obscuratiōis. 1. hora. 16. minu
 ta. Tanto nāq; tēpore lunā stabit in umbra totaliter obscurata. Duratio autē eclipsis ab initio usq; ad
 finem erit hō. 3. m. 36. Deniq; cum tēpore dimidiæ durationis scilicet hora. 1. m. 48. & cum argumē
 to lunæ æquato intro tabulam uerī motus lunæ in horis & fractionibus: & inuenio uerū motū lunæ in
 eodem tēpore esse signū. 1. gra. 4. m. 44. Hunc minuo ab argumēto latitudinis æquato ad ueram op
 positionem: elidēq; adiūgo: & proueniet argumentum latitudinis lunæ æquatū ad principium eclipsis
 fig. 11. gra. 25. m. 31. secun. 3. Et ad finem fig. 11. gra. 27. m. 40. secun. 31. Cum his quatuor latitudinē
 lunæ in tabula latitudinis lunæ. Et erit latitudo lunæ ad initium eclipsis. m. 23. secun. 31. meridiona
 lis. Ad finem uero m. 12. secun. 11. similiter meridiana. Deinceps in tabula semidiametrorū cum argu
 mento lunæ inuenio semidiametrum lunæ. m. 18. secun. 3. Vmbre uero. m. 46. secun. 55. Sed cum sol
 non sit in auge: Intro etiā cū argumēto solis: & inuenio uariationē umbre. 55. scda. Quib; a semidiamē
 tro umbre in tabula reperio demptis exibit semidiameter umbre equata ad locū eclipsis. 46. minuta.

Exemplum eclypsis Lunarís.

C T andē ut hāc eclipſim lunārē in plano figurem: ducta linea recta. b. a. c. pono elus medietatē. a. c. 64. partes: eo q. in aggregato ſemidiametrorū lunā & umbrā ſunt. 64. minuta. & ſup. a. tanq. centro fm quantitatē ſemidiametri. a. c. facto diametro. b. c. c. f. qui erit diameter umbrā & lunā uſualium. & c. a. b. erit loco partis eclipſice: quā luna ab initio eclipſis uſq. ad finē perambulāt ſup. eā. & fiat e. a. f. orthogonalis occulta. & ſit. b. pars orientalis. c. occidentalis. e. meridionalis. f. ſeptentrionalis. Deinde officio circini facio. a. d. partiū. 46. fm quantitatē ſemidiametri umbrā: & ſup. a. tanq. centro fm eandem quantitatē facio circuli. d. g. qui circuli umbrā in loco trāſitus lunā repræſentabit. Iterū officio circini cōſtituo. a. h. z. partiū & mediā uerſus. e. fm quantitatē latitudinis in principio eclipſis: quā meridiana eſt. Et hec de partibus linē a. c. Item. a. k. uerſus eandem partē in occulta linea habeat. 12. partes & quartam unius fm quantitatē latitudinis lunā in fine eclipſis. aut (ſi uoles) omite fractionē. Deinde duco h. i. ad diſtantiā. a. c. q. fecit circiferentiā. e. c. f. in pūcto. l. Siſt duco. k. m. aquediſtantiē. a. b. cuius ſectio cum periferia. e. b. f. ſit. m. & ducta linea. l. m. diuiſaq. p. mediū ſn. o. facio tres circulos fm quantitatē ſemidiametri lunā ſcilicet. c. d. in tribus locis p. tria centra. l. o. m. & ſic habebimus figurā depictā. In q. circulus. g. d. ſignificat circuli pyramidis umbrā in loco trāſitū lunā. Et circulus ſup. l. designat lunā in principio eclipſis dū in umbrā terræ ingredit. Et circulus ſup. o. repræſentat eam in medio eclipſis. Et quantū hic circulus p. fundat in circulo umbrā uerſus centrum. a. tantū proportio nabiliter corp. lunā p. fundabit in pyramide umbrā terræ uerſus axem ſeu nadir ſolis appropinquādo. Circulus autē ſup. m. demōſtrat lunā in fine eclipſis dum umbram primo tota egreſſa eſt. Et linea l. o. m. ſignificat trāſitū lunā ab initio eclipſis uſq. ad finē. Si placuerit poteris quoq. lunā figurare in principio totalis obſcurationis: atq. in fine eius: ſcilicet in principio more & in fine: fm eandem quantitatē ſemidiametri lunā uſualis. & ſic haberes eam ſignatā in quinq. locis. & ſemper erit centrum eius in linea trāſitus eius a principio ad finem.

Figuratio Eclýsis Lunarís Ad annũ Chrísti, 1460. currentem.



Tabula mediarū p̄fectionū ⁊ oppositionū Solis ⁊ Lune.

In annis christi collectis ⁊ completis.

Anni rpi col- lecti et cōl	Tempus				Ab ortu sol ⁊ lune medij et ☾				Argumenti lune medij ☾				Argumenti latitudinis lune medij ☾				
					☾ et ☾												
	plcti.	dieb.	hor.	mi.	fa.	☾	g.	mi.	fa.	☾	g.	mi.	fa.	☾	g.	mi.	fa.
1400	15	0	3	37		9	3	47	38	8	24	6	56	2	23	5	24
1440	7	8	38	27		9	11	37	14	2	23	26	44	4	24	58	59
1480	29	5	57	20		8	20	20	26	7	26	57	32	5	26	12	21
1520	21	14	32	11		8	28	10	2	1	26	17	20	7	28	5	56
1560	13	23	7	1		9	5	59	38	7	25	37	9	9	29	59	31
1600	6	7	41	52		9	13	49	14	1	24	56	57	0	1	53	6
1640	28	5	0	45		8	22	32	25	6	28	27	45	1	3	6	28
1680	20	13	35	35		9	0	22	1	0	27	47	32	3	5	0	3
1720	12	22	10	26		9	8	11	37	6	27	7	21	5	6	53	38
1760	5	6	45	16		9	16	1	13	0	26	27	9	7	8	47	14
1800	27	4	4	10		8	24	44	25	5	29	57	57	8	10	0	35
1840	19	12	39	0		9	2	34	1	11	29	17	45	10	11	54	11
1880	11	21	13	51		9	10	23	37	5	28	37	33	0	13	47	46
1920	4	5	48	41		9	18	13	13	11	27	57	22	2	15	41	21
1960	26	3	7	34		8	26	56	25	5	1	28	10	3	16	54	43
2000	18	11	42	25		9	4	46	0	11	0	47	58	5	18	48	18
2040	10	20	17	15		9	12	35	36	5	0	7	47	7	20	41	53
2080	3	4	52	6		9	20	25	12	10	29	27	35	9	22	35	28
2120	25	2	10	59		8	29	8	24	4	2	58	23	10	23	49	0
2160	17	10	45	49		9	6	58	0	10	2	18	11	0	25	42	25
2200	9	19	20	40		9	14	47	36	4	1	38	0	2	27	36	1
2240	2	3	55	30		9	22	37	12	10	0	57	48	4	29	29	36
2280	24	1	14	24		9	1	20	24	3	4	28	36	6	0	42	57
2320	16	9	49	14		9	9	10	0	9	3	48	24	8	2	36	33
2360	8	18	24	4		9	16	59	36	3	3	8	13	10	4	30	8
2400	1	2	58	55		9	24	49	12	9	2	28	1	0	6	23	43
2440	23	0	17	48		9	3	32	23	2	5	58	49	1	7	37	5
2480	15	8	52	39		9	11	21	59	8	5	18	37	3	9	30	40
2520	7	17	27	29		9	19	11	35	2	4	38	26	5	11	24	15
2560	0	2	2	20		9	27	1	11	8	3	58	14	7	13	17	51
2600	21	23	21	13		9	5	44	23	1	7	29	2	8	14	31	12
2640	14	7	56	3		9	13	33	59	7	6	48	50	10	16	24	47
2670	6	16	30	54		9	21	23	35	1	6	8	39	0	18	18	23
2710	28	13	49	47		9	0	6	47	6	9	39	27	1	19	31	45
2760	20	22	24	38		9	7	56	23	0	8	59	15	3	21	25	20
2800	13	6	59	28		9	15	45	58	6	8	19	3	5	23	18	56
2840	5	15	34	18		9	23	35	34	0	7	38	52	7	25	12	31
2880	27	12	53	12		9	2	18	46	5	11	9	40	8	26	25	53
2920	19	21	28	2		9	10	8	22	11	10	29	28	10	28	19	28
2960	12	6	2	53		9	17	57	58	5	9	49	16	1	0	13	3
3000	4	14	37	43		9	25	47	34	11	9	9	5	3	2	6	38
3040	26	11	56	37		9	4	30	46	4	12	39	53	4	3	20	0

Tabula mediarū conjunctionū & oppositionū Solis & Lune.

In annis christi expansis & completis.

Anni rpi cr- panfi et cō pleti.	Tempus				24	Mortus sol & lune medij O et C				20	Argumenti lune medij C				59	Argumenti latitudinis lune medij C				11
	dies	hor	m	sa		g	m	sa	g		m	sa	g	m		sa	g	m	sa	
1	10	15	11	23		11	19	16	50		10	9	48	6		0	8	2	45	
2	21	6	22	47		11	8	33	41		8	19	36	14		0	16	5	30	
3	2	8	50	7		11	26	56	55		7	25	13	22		1	24	48	29	
4	14	0	1	31		11	16	13	45		6	5	1	29		2	2	51	15	
5	24	15	12	54		11	5	30	36		4	14	49	36		2	10	54	0	
6	5	17	40	14		11	23	53	50		3	20	26	43		3	19	36	59	
7	16	8	51	38		11	13	10	41		2	0	14	50		3	27	39	44	
8	28	0	3	1		11	2	27	31		0	10	2	57		4	5	42	29	
9	9	2	30	21		11	20	50	45		11	15	40	5		5	14	25	28	
10	19	17	41	45		11	10	7	36		9	25	23	12		5	22	28	13	
11	0	20	9	5		11	28	30	50		9	1	5	19		7	7	1	11	
12	12	11	20	29		11	17	47	41		7	10	53	26		7	9	13	58	
13	23	2	31	52		11	7	4	31		5	20	41	33		7	17	16	43	
14	4	4	59	12		11	25	27	46		4	26	18	41		8	25	59	42	
15	14	20	10	36		11	14	44	36		3	6	6	48		9	4	2	27	
16	26	11	21	59		11	4	1	26		1	15	54	55		9	12	5	12	
17	7	13	49	20		11	22	24	41		0	21	32	2		10	20	48	11	
18	18	5	0	43		11	11	41	31		11	1	20	9		10	28	50	57	
19	28	20	12	6		11	0	58	21		9	11	8	16		11	6	53	42	
20	10	22	32	27		11	19	21	36		8	16	45	24		0	15	46	41	
21	21	13	50	50		11	8	38	26		6	26	33	31		0	23	39	26	
22	2	16	18	10		11	27	1	41		6	2	10	38		2	2	22	25	
23	13	7	29	34		11	16	18	31		4	11	58	45		2	10	25	10	
24	24	22	40	57		11	5	35	21		2	21	46	52		2	18	27	55	
25	6	1	8	18		11	23	58	36		1	27	24	0		3	27	10	54	
26	16	16	19	41		11	13	15	26		0	7	12	7		4	5	13	40	
27	27	7	31	4		11	2	32	17		10	17	0	14		4	13	16	25	
28	9	9	58	25		11	20	55	31		9	22	37	22		5	21	59	24	
29	20	1	9	48		11	10	12	21		8	2	25	29		6	0	2	9	
30	1	3	37	9		11	28	35	36		7	8	2	36		7	8	45	8	
31	11	18	48	32		11	17	52	26		5	17	50	43		7	16	47	53	
32	23	9	59	55		11	7	9	17		3	27	18	50		7	24	50	38	
33	4	12	27	16		11	25	32	31		3	3	15	58		9	3	33	37	
34	15	3	38	39		11	14	49	21		1	13	4	5		9	11	36	23	
35	25	18	50	3		11	4	6	12		11	22	52	12		9	19	39	8	
36	7	21	17	24		11	22	29	26		10	28	29	19		10	28	22	7	
37	18	12	28	46		11	11	46	17		9	8	17	26		11	6	24	52	
38	29	3	40	10		11	1	3	7		7	18	5	33		11	14	27	37	
39	10	6	7	30		11	19	26	21		6	23	42	41		0	23	10	36	
40	21	21	18	53	27	11	8	43	11	45	5	3	30	47	49	1	1	13	21	

Tabula mediarū p̄iſctionū ⁊ oppoſitionū Solis ⁊ Lune.

In menſibus.

Menses cōmunes.

Tempus					Notus sol ⁊ lune mediū				Argumenti lune mediū				Argumenti latitudinis lune mediū			
	dies	hor.	min.	sec.	°	'	''	'''	°	'	''	'''	°	'	''	'''
Adenses.	1	11	15	57	0	29	6	24	0	25	49	1	1	0	40	14
Januari.	29	11	15	57	0	29	6	24	0	25	49	1	1	0	40	14
februari.	1	9	47	51	2	27	19	13	2	17	27	2	3	2	0	41
Martius.	1	21	3	48	3	26	25	37	3	13	16	2	4	2	40	55
Aprilis.	3	8	19	45	4	25	32	1	4	9	5	3	5	3	21	9
Maius.	3	19	35	42	5	24	38	25	5	4	54	3	6	4	1	23
Iunius.	5	6	51	39	6	23	44	49	6	0	43	4	7	4	41	36
Julius.	6	18	7	36	7	22	51	14	6	26	32	5	8	5	21	50
Augustus.	7	5	23	33	8	21	57	38	7	22	21	5	9	6	2	4
Septemb.	8	16	39	30	9	21	4	2	8	18	10	6	10	6	42	18
October.	9	3	55	26	10	20	10	26	9	13	59	6	11	7	22	31
Novemb.	10	15	11	23	11	19	16	50	10	9	48	7	0	8	2	45
December.																

Menses Bifertiles.

Tempus					Notus sol ⁊ lune mediū				Argumenti lune mediū				Argumenti latitudinis lune mediū			
	dies	hor.	min.	sec.	°	'	''	'''	°	'	''	'''	°	'	''	'''
Adenses.	1	11	15	57	0	29	6	24	0	25	49	1	1	0	40	14
Januari.	0	22	31	54	1	28	12	48	1	21	38	1	2	1	20	28
februari.	2	9	47	51	2	27	19	13	2	17	27	2	3	2	0	41
Martius.	2	21	3	48	3	26	25	37	3	13	16	2	4	2	40	55
Aprilis.	4	8	19	45	4	25	32	1	4	9	5	3	5	3	21	9
Maius.	4	19	35	42	5	24	38	25	5	4	54	3	6	4	1	23
Iunius.	6	6	51	39	6	23	44	49	6	0	43	4	7	4	41	36
Julius.	7	18	7	36	7	22	51	14	6	26	32	5	8	5	21	50
Augustus.	8	5	23	33	8	21	57	38	7	22	21	5	9	6	2	4
Septemb.	9	16	39	30	9	21	4	2	8	18	10	6	10	6	42	18
October.	10	3	55	26	10	20	10	26	9	13	59	6	11	7	22	31
Novemb.	11	15	11	23	11	19	16	50	10	9	48	7	0	8	2	45
December.																

Tabella Revolutionum.

♂	Ab illo minue.				Adde loco Solis.				Adde argumēto lune.				Adde argumēto latitudinis lune			
	dies	hor.	min.	sec.	°	'	''	'''	°	'	''	'''	°	'	''	'''
Oppositio.	14	18	22	2	0	14	33	12	6	12	54	30	6	15	20	7
Coniunctio.	29	12	44	3	0	29	6	24	0	25	49	1	1	0	40	14
Oppositio.	44	7	6	5	1	13	39	36	7	8	43	31	7	16	0	21
Coniunctio.	59	1	28	6	1	28	12	48	1	21	38	1	2	1	20	28
Oppositio.	73	19	50	8	2	12	46	1	8	4	32	31	8	16	40	14
Coniunctio.	88	14	12	9	2	27	19	13	2	17	27	2	3	2	0	41

Tabula Eclipsis Solis.

Anni decessi Complet.	Flux				Annotus in anno	Fa	Anni decessi Complet.	Flux				Annotus in anno	Fa	Anni decessi Complet.	Flux				Annotus in anno	Fa
	o	g	m	fa				o	g	m	fa				o	g	m	fa		
1400	3	0	14	9	35		1675	3	2	42	54	28		1950	3	4	37	39		
1405	3	0	17	8			1680	3	2	44	18			1955	3	4	39	27		
1410	3	0	20	6			1685	3	2	46	41			1960	3	4	41	14	21	
1415	3	0	23	3			1690	3	2	49	3			1965	3	4	43	1		
1420	3	0	26	0			1695	3	2	51	25			1970	3	4	44	47		
1425	3	0	28	56			1700	3	2	53	46			1975	3	4	46	33		
1430	3	0	31	51			1705	3	2	56	6			1980	3	4	48	18		
1435	3	0	34	46			1710	3	2	58	26			1985	3	4	50	3		
1440	3	0	37	40	34		1715	3	3	0	45			1990	3	4	51	47		
1445	3	0	40	33			1720	3	3	3	27			1995	3	4	53	30		
1450	3	0	43	26			1725	3	3	5	21			2000	3	4	55	12	20	
1455	3	0	46	18			1730	3	3	7	38			2005	3	4	56	54		
1460	3	0	49	9			1735	3	3	9	55			2010	3	4	58	35		
1465	3	0	51	59			1740	3	3	12	11			2015	3	5	0	16		
1470	3	0	54	48			1745	3	3	14	27			2020	3	5	1	56		
1475	3	0	57	37			1750	3	3	16	42			2025	3	5	3	36		
1480	3	1	0	25	33		1755	3	3	18	57			2030	3	5	5	15		
1485	3	1	3	13			1760	3	3	21	11	26		2035	3	5	6	53		
1490	3	1	6	0			1765	3	3	23	24			2040	3	5	8	31	19	
1495	3	1	8	47			1770	3	3	25	36			2045	3	5	10	8		
1500	3	1	11	33			1775	3	3	27	47			2050	3	5	11	45		
1505	3	1	14	18			1780	3	3	29	57			2055	3	5	13	21		
1510	3	1	17	3			1785	3	3	32	7			2060	3	5	14	57		
1515	3	1	19	47			1790	3	3	34	16			2065	3	5	16	32		
1520	3	1	22	31	32		1795	3	3	36	24			2070	3	5	18	7		
1525	3	1	25	14			1800	3	3	38	31	25		2075	3	5	19	41		
1530	3	1	27	57			1805	3	3	40	38			2080	3	5	21	15	18	
1535	3	1	30	39			1810	3	3	42	45			2085	3	5	22	48		
1540	3	1	33	20			1815	3	3	44	51			2090	3	5	24	20		
1545	3	1	36	1			1820	3	3	46	56			2095	3	5	25	51		
1550	3	1	38	41			1825	3	3	49	1			2100	3	5	27	21		
1555	3	1	41	20			1830	3	3	51	5			2105	3	5	28	50		
1560	3	1	43	58	31		1835	3	3	53	9			2110	3	5	30	18		
1565	3	1	46	36			1840	3	3	55	12	24		2115	3	5	31	45		
1570	3	1	49	13			1845	3	3	57	16			2120	3	5	33	11	17	
1575	3	1	51	50			1850	3	3	59	16			2125	3	5	34	37		
1580	3	1	54	26			1855	3	4	1	17			2130	3	5	36	3		
1585	3	1	57	2			1860	3	4	3	17			2135	3	5	37	28		
1590	3	1	59	38			1865	3	4	5	17			2140	3	5	38	52		
1595	3	2	2	13			1870	3	4	7	16			2145	3	5	40	16		
1600	3	2	4	48	30		1875	3	4	9	15			2150	3	5	41	39		
1605	3	2	7	22			1880	3	4	11	13	23		2155	3	5	43	2		
1610	3	2	9	55			1885	3	4	13	11			2160	3	5	44	25	16	
1615	3	2	12	27			1890	3	4	15	8			2165	3	5	45	47		
1620	3	2	14	58			1895	3	4	17	4			2170	3	5	47	9		
1625	3	2	17	28			1900	3	4	18	59			2175	3	5	48	30		
1630	3	2	19	57			1905	3	4	20	54			2180	3	5	49	51		
1635	3	2	22	25			1910	3	4	22	48			2185	3	5	51	11		
1640	3	2	24	53	29		1915	3	4	24	42			2190	3	5	52	30		
1645	3	2	27	20			1920	3	4	26	35	22		2195	3	5	53	48		
1650	3	2	29	47			1925	3	4	28	27			2200	3	5	55	6	15	
1655	3	2	32	13			1930	3	4	30	19			2205	3	5	56	24		
1660	3	2	34	39			1935	3	4	32	10			2210	3	5	57	41		
1665	3	2	37	4			1940	3	4	34	0			2215	3	5	58	57		
1670	3	2	39	29			1945	3	4	35	50			2220	3	6	0	13		

Tabula Augis Solis.

Anni dñi Complet.	Flux				Abotus in anno Fa		Anni dñi Complet.	Flux				Abotus in anno Fa		Anni dñi Complet.	Flux				Abotus in anno Fa
	g	g	m	fa				g	g	m	fa				g	g	m	fa	
2225	3	6	1	28			2500	3	6	55	37			2775	3	7	23	23	
2230	3	6	2	41			2505	3	6	56	20			2780	3	7	23	41	
2235	3	6	3	57			2510	3	6	57	3			2785	3	7	23	58	
2240	3	6	5	10	14		2515	3	6	57	45			2790	3	7	24	15	
2245	3	6	6	23			2520	3	6	58	26	8		2795	3	7	24	31	
2250	3	6	7	36			2525	3	6	59	7			2800	3	7	24	47	3
2255	3	6	8	48			2530	3	6	59	47			2805	3	7	25	2	
2260	3	6	9	59			2535	3	7	0	27			2810	3	7	25	17	
2265	3	6	11	10			2540	3	7	1	6			2815	3	7	25	32	
2270	3	6	12	20			2545	3	7	1	45			2820	3	7	25	46	
2275	3	6	13	30			2550	3	7	2	23			2825	3	7	26	0	
2280	3	6	14	39	13		2555	3	7	3	1			2830	3	7	26	13	
2285	3	6	15	47			2560	3	7	3	38	7		2835	3	7	26	26	
2290	3	6	16	55			2565	3	7	4	15			2840	3	7	26	39	3
2295	3	6	18	2			2570	3	7	4	51			2845	3	7	26	51	
2300	3	6	19	9			2575	3	7	5	27			2850	3	7	27	3	
2305	3	6	20	15			2580	3	7	6	2			2855	3	7	27	15	
2310	3	6	21	20			2585	3	7	6	37			2860	3	7	27	26	
2315	3	6	22	25			2590	3	7	7	11			2865	3	7	27	37	
2320	3	6	23	29	12		2595	3	7	7	45			2870	3	7	27	48	
2325	3	6	24	32			2600	3	7	8	18	7		2875	3	7	27	58	
2330	3	6	25	34			2605	3	7	8	51			2880	3	7	28	8	2
2335	3	6	26	36			2610	3	7	9	24			2885	3	7	28	18	
2340	3	6	27	37			2615	3	7	9	56			2890	3	7	28	27	
2345	3	6	28	37			2620	3	7	10	28			2895	3	7	28	36	
2350	3	6	29	37			2625	3	7	10	59			2900	3	7	28	45	
2355	3	6	30	36			2630	3	7	11	30			2905	3	7	28	53	
2360	3	6	31	35	11		2635	3	7	12	1			2910	3	7	29	1	
2365	3	6	32	34			2640	3	7	12	31	6		2915	3	7	29	9	
2370	3	6	33	32			2645	3	7	13	1			2920	3	7	29	16	1
2375	3	6	34	30			2650	3	7	13	30			2925	3	7	29	23	
2380	3	6	35	27			2655	3	7	13	59			2930	3	7	29	30	
2385	3	6	36	23			2660	3	7	14	28			2935	3	7	29	36	
2390	3	6	37	19			2665	3	7	14	56			2940	3	7	29	42	
2395	3	6	38	14			2670	3	7	15	24			2945	3	7	29	47	
2400	3	6	39	9	10		2675	3	7	15	51			2950	3	7	29	52	
2405	3	6	40	3			2680	3	7	16	18	5		2955	3	7	29	57	
2410	3	6	40	57			2685	3	7	16	44			2960	3	7	30	1	1
2415	3	6	41	50			2690	3	7	17	10			2965	3	7	30	5	
2420	3	6	42	43			2695	3	7	17	35			2970	3	7	30	9	
2425	3	6	43	35			2700	3	7	18	0			2975	3	7	30	13	
2430	3	6	44	27			2705	3	7	18	24			2980	3	7	30	16	
2435	3	6	45	18			2710	3	7	18	48			2985	3	7	30	19	
2440	3	6	46	8	9		2715	3	7	19	11			2990	3	7	30	22	
2445	3	6	46	58			2720	3	7	19	34	5		2995	3	7	30	24	
2450	3	6	47	48			2725	3	7	19	57			3000	3	7	30	26	0
2455	3	6	48	37			2730	3	7	20	19			3005	3	7	30	27	
2460	3	6	49	26			2735	3	7	20	41			3010	3	7	30	28	
2465	3	6	50	14			2740	3	7	21	3			3015	3	7	30	28	
2470	3	6	51	2			2745	3	7	21	24			3020	3	7	30	29	
2475	3	6	51	30			2750	3	7	21	45			3025	3	7	30	29	
2480	3	6	52	37	9		2755	3	7	22	5			3030	3	7	30	30	
2485	3	6	53	23			2760	3	7	22	25	4		3035	3	7	30	30	
2490	3	6	54	8			2765	3	7	22	45			3040	3	7	30	30	0
2495	3	6	54	53			2770	3	7	23	4			0	0	0	0	0	

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2321	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	das	Signa
0 0	0 0	0 9	0 19	0 28	0 37	0 47	0 57	1 7	1 16	1 25	1 35	1 44	1 53	2 2	2 11	1 19	12 0	0
0 1	0 11	0 21	0 31	0 41	0 51	1 0	1 10	1 20	1 30	1 40	1 50	2 0	2 10	2 20	2 30	2 40	11 29	1
0 2	0 21	0 31	0 41	0 51	1 0	1 10	1 20	1 30	1 40	1 50	2 0	2 10	2 20	2 30	2 40	2 50	11 28	2
0 3	0 32	0 42	0 52	1 0	1 10	1 20	1 30	1 40	1 50	2 0	2 10	2 20	2 30	2 40	2 50	3 0	11 27	3
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0 5	0 53	1 0	1 10	1 20	1 30	1 40	1 50	2 0	2 10	2 20	2 30	2 40	2 50	3 0	3 10	3 20	11 25	5
0 6	1 3	1 13	1 23	1 33	1 43	1 53	2 0	2 10	2 20	2 30	2 40	2 50	3 0	3 10	3 20	3 30	11 24	6
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0 15	2 35	2 45	2 55	3 0	3 10	3 20	3 30	3 40	3 50	4 0	4 10	4 20	4 30	4 40	4 50	5 0	11 15	15
0 16	2 45	2 55	3 0	3 10	3 20	3 30	3 40	3 50	4 0	4 10	4 20	4 30	4 40	4 50	5 0	5 10	11 14	16
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1 7	5 58	6 8	6 18	6 28	6 38	6 48	6 58	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	10 23	7
1 8	6 6	6 16	6 26	6 36	6 46	6 56	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	8 30	10 22	8
1 9	6 14	6 24	6 34	6 44	6 54	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	8 30	8 40	10 21	9
1 10	6 22	6 32	6 42	6 52	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	8 30	8 40	8 50	10 20	10
1 11	6 30	6 40	6 50	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	8 30	8 40	8 50	9 0	10 19	11
1 12	6 38	6 48	6 58	7 8	7 18	7 28	7 38	7 48	7 58	8 8	8 18	8 28	8 38	8 48	8 58	9 8	10 18	12
1 13	6 46	6 56	7 6	7 16	7 26	7 36	7 46	7 56	8 6	8 16	8 26	8 36	8 46	8 56	9 6	9 16	10 17	13
1 14	6 53	7 3	7 13	7 23	7 33	7 43	7 53	8 3	8 13	8 23	8 33	8 43	8 53	9 3	9 13	9 23	10 16	14
1 15	7 0	7 10	7 20	7 30	7 40	7 50	8 0	8 10	8 20	8 30	8 40	8 50	9 0	9 10	9 20	9 30	10 15	15
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11

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Tabula distantie Vere Coniunctionis

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4 17	4 34	4 27	4 20	4 14	4 8	4 2	3 56	3 50	3 44	3 38	3 32	3 27	3 22	3 17	3 12	3 8	7 13
4 18	4 27	4 20	4 13	4 7	4 1	3 55	3 49	3 43	3 37	3 31	3 25	3 20	3 15	3 10	3 5	3 1	7 12
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Sta	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	dua

Argumenti Solis

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Signa

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Signa

aut Oppositionis a Media.

Signa

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Argumenti Solis

Gra- du Sola- ris	0		2		4		6		8		10		12		14		16		18		20		22		24		26		28		30		dua	
	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	B	m	Gra- du Sola- ris			
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Sta	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	dua																	

Argumenti Solis

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Signa

Tabula distantie Vere Coniunctionis

Signa

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Argumenti Solis

Sta	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	du
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1 2	6 4	6 0	5 56	5 52	5 48	5 45	5 42	5 39	5 36	5 34	5 32	5 30	5 29	5 28	5 27	5 27	8 28
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1 71	0 86	0 82	0 78	0 75	0 72	0 69	0 66	0 63	0 61	0 59	0 57	0 55	0 53	0 52	0 51	0 51	6 49

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Argumenti Solis

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4 17	3 8	3 4	3 0	2 57	2 54	2 51	2 48	2 46	2 43	2 41	2 39	2 37	2 36	2 35	2 34	2 34	7 13
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	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	

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Tabula distantie Vere Coniunctionis

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Argumenti Solis

Sta	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	dua
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4	4 5	4 5	4 5	4 5	4 4	4 4	4 3	4 1	3 59	3 57	3 55	3 52	3 49	3 45	3 41	3 37	11 26
5	3 54	3 54	3 54	3 54	3 53	3 52	3 50	3 48	3 46	3 44	3 41	3 38	3 34	3 30	3 26	3 21	11 25
6	3 44	3 44	3 44	3 44	3 43	3 42	3 40	3 38	3 36	3 34	3 31	3 28	3 24	3 20	3 16	3 11	11 24
7	3 33	3 33	3 33	3 33	3 32	3 31	3 29	3 27	3 25	3 23	3 20	3 17	3 13	3 9	3 5	3 0	11 23
8	3 23	3 23	3 23	3 23	3 22	3 21	3 19	3 17	3 15	3 13	3 10	3 7	3 3	2 59	2 55	2 50	11 22
9	3 12	3 12	3 12	3 12	3 11	3 10	3 8	3 6	3 4	3 2	2 59	2 56	2 52	2 48	2 44	2 39	11 21
10	3 2	3 2	3 2	3 2	3 1	3 1	2 58	2 56	2 54	2 52	2 49	2 46	2 42	2 38	2 34	2 29	11 20
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Argumenti Solis

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Argumenti Solis

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17	39	39	39	39	40	41	43	45	47	49	52	55	59	3	3	7	11	13
18	46	46	46	46	47	48	50	52	54	56	59	3	2	6	10	14	18	10
19	53	53	53	53	54	55	57	59	3	1	3	6	3	9	13	17	21	25
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21	3	6	3	6	3	6	3	7	3	8	3	10	3	12	3	14	3	16
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26	3	38	3	38	3	38	3	39	3	40	3	42	3	44	3	46	3	48
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28	3	50	3	50	3	50	3	51	3	52	3	54	3	56	3	58	3	60
29	3	56	3	56	3	56	3	57	3	58	3	60	3	62	3	64	3	66
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Argumenti Solis

8

Signa

Tabula distantie Vere Coniunctionis

Signa

3

Argumenti Solis

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3 4	5 26	5 26	5 26	5 26	5 27	5 28	5 29	5 31	5 33	5 35	5 38	5 41	5 44	5 48	5 52	5 56	2 0
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3 7	5 24	5 24	5 24	5 24	5 25	5 26	5 27	5 29	5 31	5 33	5 36	5 39	5 42	5 46	5 50	5 54	2 0
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Argumenti Solis

8

Signa

aut Oppositionis a Media.

Signa

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Argumenti Solis

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Argumenti Solis

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Signa

Tabula distantie Vere Coniunctionis

Signa

4

Argumenti Solis

Sta	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	dua
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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

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Tabula Distantie Vere Coniunctionis

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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

Signa

Tabula Distantie Vere Coniunctionis

Signa

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Argumenti Solis

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2	0	9 43	9 53	10 2	10 11	10 21	10 30	10 39	10 48	10 57	11 5	11 14	11 22	11 30	11 38	11 46	11 54
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4	0	9 41	9 51	10 0	10 9	10 19	10 28	10 37	10 46	10 55	11 3	11 12	11 20	11 28	11 36	11 44	11 52
5	0	9 40	9 50	9 59	10 8	10 18	10 27	10 36	10 45	10 54	11 2	11 11	11 19	11 27	11 35	11 43	11 51
6	0	9 39	9 49	9 58	10 7	10 17	10 26	10 35	10 44	10 53	11 1	11 10	11 18	11 26	11 34	11 42	11 50
7	0	9 37	9 47	9 57	10 6	10 16	10 25	10 34	10 43	10 52	11 0	11 9	11 17	11 25	11 33	11 41	11 49
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71	0	6 35	9 5	9 14	9 23	9 32											

aut Oppositionis a Media.

Signa

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Araumenti Solis

[illegible]

Signal

Tabula distantie Vere Coniunctionis

Signa

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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

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Sta	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	das	

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Argumenti Solis



Date		0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	Days																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

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Argumenti Solis

3

Signa

Tabula Distantie Vere Coniunctionis

Signa

9

Argumenti Solis

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7	0	14 14	14 13	14 12	14 10													

aut Oppositionis a Media.

Signa

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Argumenti Solis

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Argumenti Solis

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Signa

Tabula Distantie Vere Coniunctionis

Signa

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Argumenti Solis

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9	13 44	13 43	13 42	13 41	13 40	13 38	13 36	13 34	13 32	13 29	13 26	13 23	13 19	13 15	13 11	7	8 22
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ant Oppositionis a Media.

Signa

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Argumenti Solis

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Argumenti Solis

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Signa

Tabula Distantie Uere Coniunctionis

Signa

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Argumenti Solis

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ant Oppositionis a Medie.

Signa

10

Argumenti Solis

Sta	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	das
Sta	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	das
1 15	10 56	10 51	10 45	10 39	10 33	10 27	10 20	10 13	10 6	9 59	9 52	9 45	9 37	9 30	9 22	9 14	10 15
1 16	11 3	10 58	10 52	10 46	10 40	10 34	10 27	10 20	10 13	10 6	9 59	9 52	9 44	9 37	9 29	9 21	10 14
1 17	11 10	11 5	10 59	10 53	10 47	10 41	10 34	10 27	10 20	10 13	10 6	9 59	9 51	9 44	9 36	9 28	10 13
1 18	11 16	11 11	11 5	10 59	10 53	10 47	10 40	10 33	10 26	10 19	10 12	10 5	9 58	9 51	9 43	9 35	10 12
1 19	11 22	11 17	11 11	11 5	10 59	10 53	10 46	10 39	10 32	10 25	10 18	10 11	10 4	9 57	9 49	9 41	10 11
1 20	11 28	11 23	11 17	11 11	11 5	10 59	10 52	10 45	10 38	10 31	10 24	10 17	10 10	10 3	9 55	9 47	10 10
1 21	11 34	11 29	11 23	11 17	11 11	11 5	10 58	10 51	10 44	10 37	10 30	10 23	10 16	10 9	10 1	9 53	10 9
1 22	11 40	11 35	11 29	11 23	11 17	11 11	11 4	10 57	10 50	10 43	10 36	10 29	10 22	10 15	10 7	9 59	10 8
1 23	11 46	11 41	11 35	11 29	11 23	11 17	11 10	11 3	10 56	10 49	10 42	10 35	10 28	10 21	10 13	10 5	10 7
1 24	11 52	11 47	11 41	11 35	11 29	11 23	11 16	11 9	11 2	10 55	10 48	10 41	10 34	10 27	10 19	10 11	10 6
1 25	11 57	11 52	11 47	11 41	11 35	11 29	11 22	11 15	11 8	11 1	10 54	10 47	10 40	10 33	10 25	10 17	10 5
1 26	12 2	11 57	11 52	11 46	11 40	11 34	11 27	11 20	11 13	11 6	10 59	10 52	10 45	10 38	10 30	10 22	10 4
1 27	12 7	12 2	11 57	11 51	11 45	11 39	11 32	11 25	11 18	11 11	11 4	10 57	10 50	10 43	10 35	10 27	10 3
1 28	12 12	12 7	12 1	11 56	11 50	11 44	11 37	11 30	11 23	11 16	11 9	11 2	10 55	10 48	10 40	10 32	10 2
1 29	12 17	12 12	12 6	11 55	11 49	11 42	11 35	11 28	11 21	11 14	11 7	11 0	10 53	10 45	10 37	10 1	10 1
2 0	12 22	12 17	12 12	12 6	12 0	11 54	11 47	11 40	11 33	11 26	11 19	11 12	11 5	10 58	10 50	10 42	10 0
2 1	12 26	12 21	12 16	12 10	12 4	11 58	11 51	11 45	11 38	11 31	11 24	11 17	11 10	11 3	10 55	10 47	9 29
2 2	12 30	12 25	12 20	12 14	12 8	12 2	11 55	11 49	11 42	11 35	11 28	11 21	11 14	11 7	10 59	10 51	9 28
2 3	12 34	12 29	12 24	12 18	12 12	12 6	11 59	11 53	11 46	11 39	11 32	11 25	11 18	11 11	11 3	10 55	9 27
2 4	12 38	12 33	12 28	12 22	12 16	12 10	12 3	11 57	11 50	11 43	11 36	11 29	11 22	11 15	11 7	10 59	9 26
2 5	12 42	12 37	12 32	12 26	12 20	12 14	12 7	12 1	11 54	11 47	11 40	11 33	11 26	11 19	11 11	11 3	9 25
2 6	12 46	12 41	12 36	12 30	12 24	12 18	12 11	12 5	11 58	11 51	11 44	11 37	11 30	11 23	11 15	11 7	9 24
2 7	12 49	12 44	12 39	12 33	12 27	12 21	12 14	12 8	12 2	11 55	11 48	11 41	11 34	11 27	11 19	11 11	9 23
2 8	12 52	12 47	12 42	12 36	12 30	12 24	12 17	12 11	12 5	11 58	11 51	11 44	11 37	11 30	11 22	11 14	9 22
2 9	12 55	12 50	12 45	12 39	12 33	12 27	12 20	12 14	12 8	12 1	11 54	11 47	11 40	11 33	11 25	11 17	9 21
2 10	12 58	12 53	12 48	12 42	12 36	12 30	12 23	12 17	12 11	12 4	11 57	11 50	11 43	11 36	11 28	11 20	9 20
2 11	13 1	12 56	12 51	12 45	12 39	12 33	12 26	12 20	12 14	12 7	12 0	11 53	11 46	11 39	11 31	11 23	9 19
2 12	13 4	12 59	12 54	12 48	12 42	12 36	12 29	12 23	12 17	12 10	12 3	11 56	11 49	11 42	11 34	11 26	9 18
2 13	13 6	13 1	12 56	12 50	12 44	12 38	12 31	12 25	12 19	12 12	12 5	11 58	11 51	11 44	11 37	11 29	9 17
2 14	13 8	13 3	12 58	12 52	12 46	12 40	12 33	12 27	12 21	12 14	12 7	12 0	11 53	11 46	11 39	11 31	9 16
2 15	13 10	13 5	13 0	12 54	12 48	12 42	12 35	12 29	12 23	12 16	12 9	12 2	11 55	11 48	11 41	11 33	9 15
2 16	13 12	13 7	13 2	12 56	12 50	12 44	12 37	12 31	12 25	12 18	12 11	12 4	11 57	11 50	11 43	11 35	9 14
2 17	13 14	13 9	13 4	12 58	12 52	12 46	12 39	12 33	12 27	12 20	12 13	12 6	11 59	11 52	11 45	11 37	9 13
2 18	13 16	13 11	13 6	13 0	12 54	12 48	12 41	12 35	12 29	12 22	12 15	12 8	12 1	11 54	11 47	11 39	9 12
2 19	13 17	13 12	13 7	13 1	12 55	12 49	12 42	12 36	12 30	12 23	12 16	12 9	12 2	11 55	11 48	11 40	9 11
2 20	13 18	13 13	13 8	13 2	12 56	12 50	12 43	12 37	12 31	12 24	12 17	12 10	12 3	11 56	11 49	11 41	9 10
2 21	13 19	13 14	13 9	13 3	12 57	12 51	12 44	12 38	12 32	12 25	12 18	12 11	12 4	11 57	11 50	11 42	9 9
2 22	13 20	13 15	13 10	13 4	12 58	12 52	12 45	12 39	12 33	12 26	12 19	12 12	12 5	11 58	11 51	11 43	9 8
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2 27	13 20	13 15	13 10	13 4	12 58	12 52	12 46	12 40	12 34	12 27	12 21	12 14	12 7	12 0	11 53	11 45	9 3
2 28	13 19	13 14	13 9	13 3	12 58	12 52	12 46	12 40	12 34	12 27	12 20	12 13	12 6	11 59	11 52	11 44	9 2
2 29	13 19	13 14	13 9	13 3	12 57	12 51	12 45	12 39	12 33	12 26	12 20	12 13	12 6	11 59	11 52	11 44	9 1
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Tabula Distantie Vere Coniunctionis

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Argumenti Solis

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6 0	3 13	3 9	4	2 59	2 54	2 49	2 43	2 38	2 32	2 26	2 20	2 14	2 8	3	2 1	56	1 49
	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Sta	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	du

Argumenti Solis

1

Signa

Tabula distantie Vere Coniunctionis

Signa

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Argumenti Solis

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2	2	40	2	32	2	23	2	14	2	5	1	56	1	44	1	37	1	28	1	18	1	9	0	59	0	49	0	40	0	31	0	21	11	28				
3	2	50	2	42	2	33	2	24	2	15	2	6	1	56	1	47	1	38	1	28	1	19	1	10	1	0	51	0	42	0	32	11	27					
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5	3	11	3	3	2	54	2	45	2	17	2	8	1	59	1	49	1	40	1	31	1	21	1	11	1	1	1	12	1	3	0	53	11	25				
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aut Oppositionis a Media.

Signa

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Argumenti Solis

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1 18	9 28	9 20	9 12	9 3	8 54	8 45	8 36	8 27	8 18	8 9	8 0	7 51	7 41	7 32	7 23	7 14	10 13
1 19	9 35	9 27	9 19	9 10	9 1	8 52	8 43	8 34	8 25	8 16	8 7	7 58	7 48	7 39	7 30	7 21	10 12
1 20	9 41	9 23	9 25	9 16	9 8	8 59	8 50	8 41	8 32	8 23	8 14	8 5	7 55	7 46	7 37	7 28	10 11
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Argumenti Solis

Signa

Tabula distantie Terre Coniunctionis

Signa

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©

Argumenti Solis

©

Grado	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	das
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3 24	10 41	10 34	10 27	10 19	10 12	10 4	9 56	9 48	9 40	9 32	9 24	9 16	9 8	9 0	8 52	8 44	8 6
3 25	10 36	10 29	10 22	10 14	10 7	9 59	9 51	9 44	9 36	9 28	9 20	9 12	9 4	8 56	8 48	8 40	8 5
3 26	10 31	10 24	10 17	10 9	10 2	9 59	9 46	9 39	9 31	9 23	9 15	9 7	8 59	8 51	8 43	8 35	8 4
3 27	10 26	10 19	10 12	10 4	9 57	9 49	9 41	9 34	9 26	9 18	9 10	9 2	8 54	8 46	8 38	8 30	8 3
3 28	10 21	10 14	10 7	9 59	9 52	9 44	9 36	9 29	9 21	9 13	9 5	9 57	8 49	8 41	8 33	8 25	8 2
3 29	10 16	10 9	10 2	9 54	9 47	9 39	9 31	9 24	9 16	9 8	9 0	8 52	8 44	8 36	8 28	8 20	8 1
4 0	10 11	10 4	9 57	9 49	9 42	9 34	9 26	9 19	9 11	9 3	8 55	8 47	8 39	8 31	8 23	8 15	8 0
4 1	10 6	9 59	9 52	9 44	9 37	9 29	9 21	9 14	9 6	8 58	8 50	8 42	8 34	8 26	8 18	8 10	7 29
4 2	10 0	9 53	9 46	9 38	9 31	9 23	9 15	9 8	9 0	8 52	8 44	8 36	8 28	8 20	8 12	8 4	7 28
4 3	9 54	9 47	9 40	9 32	9 25	9 17	9 9	9 2	8 54	8 46	8 38	8 30	8 22	8 14	8 6	7 58	7 27
4 4	9 48	9 41	9 34	9 26	9 19	9 11	9 3	8 56	8 48	8 40	8 32	8 24	8 16	8 8	8 1	7 53	7 26
4 5	9 42	9 35	9 28	9 20	9 13	9 5	8 57	8 50	8 42	8 34	8 26	8 18	8 10	8 3	7 55	7 47	7 25
4 6	9 36	9 29	9 22	9 14	9 7	8 59	8 51	8 44	8 36	8 28	8 20	8 12	8 4	7 57	7 49	7 41	7 24
4 7	9 30	9 23	9 16	9 8	9 1	8 55	8 45	8 38	8 30	8 22	8 14	8 6	7 58	7 51	7 43	7 35	7 23
4 8	9 24	9 16	9 9	9 1	8 54	8 46	8 38	8 31	8 23	8 15	8 8	8 0	7 52	7 45	7 37	7 29	7 22
4 9	9 17	9 10	9 3	8 55	8 48	8 40	8 32	8 25	8 17	8 9	8 1	7 53	7 45	7 38	7 30	7 22	7 21
4 10	9 10	9 3	8 56	8 48	8 41	8 33	8 25	8 18	10 8	2	7 55	7 47	7 39	7 32	7 24	7 16	7 20
4 11	9 4	8 57	8 50	8 42	8 35	8 27	8 19	8 12	8 4	7 56	7 49	7 42	7 34	7 26	7 18	7 10	7 19
4 12	8 57	8 50	8 43	8 35	8 28	8 20	8 12	8 5	7 57	7 49	7 42	7 34	7 26	7 19	7 11	7 3	7 18
4 13	8 50	8 43	8 36	8 28	8 21	8 13	8 6	7 58	7 50	7 42	7 35	7 27	7 19	7 12	7 4	6 56	7 17
4 14	8 42	8 35	8 28	8 21	8 14	8 6	7 58	7 51	7 43	7 35	7 28	7 20	7 12	7 5	6 57	6 49	7 16
4 15	8 35	8 28	8 21	8 13	8 6	7 59	7 51	7 44	7 36	7 28	7 21	7 13	7 5	6 58	6 50	6 42	7 15
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Grado	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2	0	das
Argumenti Sola																	

aut Oppositionis a Media.

Signa

11

Argumenti Solis

[illegible]

Tabula mediorū motuū In annis completis.

Ad triennia Radices	Solis, O				Lune, C				Argumenti Lune, C				Lapitis draconis S			
Incarna- tionis.	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa
1440	9	18	52	30	0	18	35	59	5	29	36	19	7	13	45	8
1460	9	19	1	19	5	2	9	47	7	9	20	45	8	10	34	59

Annū cōpleti.	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa
1	11	29	45	32	4	9	23	3	2	28	43	15	0	19	19	42
2	11	29	31	19	8	18	46	5	5	27	26	30	1	18	39	24
3	11	29	16	58	0	28	9	8	8	26	9	44	1	27	59	6
4	0	0	1	46	5	20	42	46	0	7	56	53	2	17	21	58
5	11	29	47	25	10	0	5	48	3	6	40	8	3	6	41	40
6	11	29	33	5	2	9	28	51	6	5	23	23	3	26	1	22
7	11	29	18	44	6	18	51	53	9	4	6	38	4	15	21	4
8	0	0	3	32	11	11	25	31	0	15	53	47	5	4	43	56
9	11	29	49	11	3	20	48	34	3	14	37	1	5	24	3	38
10	11	29	34	50	8	0	11	36	6	13	20	16	6	13	23	20
11	11	29	20	30	0	9	34	39	9	12	3	31	7	2	43	2
12	0	0	5	17	5	2	8	17	0	23	50	40	7	22	5	55
13	11	29	50	57	9	11	31	19	3	22	33	55	8	11	25	37
14	11	29	36	36	1	20	54	22	6	21	17	9	9	0	45	19
15	11	29	22	15	6	0	17	24	9	20	0	24	9	20	5	0
16	0	0	7	3	10	22	51	2	1	1	47	33	10	9	27	53
17	11	29	52	43	3	2	14	5	4	0	30	48	10	28	47	37
18	11	29	38	22	7	11	37	7	6	29	14	3	11	18	7	17
19	11	29	24	1	11	21	0	10	9	27	57	18	0	7	26	59
20	0	0	8	49	4	13	33	48	1	9	44	26	0	26	49	51
40	0	0	17	38	8	27	7	35	2	19	28	53	1	23	39	42
60	0	0	26	27	1	10	41	23	3	29	13	19	2	20	29	34
80	0	0	35	16	5	24	15	10	5	8	57	45	3	17	19	25
100	0	0	44	5	10	7	48	58	6	18	42	12	4	14	9	16
200	0	1	28	10	8	15	37	56	1	7	24	23	8	28	18	32
300	0	2	12	15	6	23	26	53	7	26	6	35	1	12	27	48
400	0	2	56	20	5	1	15	51	2	14	48	47	5	26	37	4
500	0	3	40	24	3	9	4	49	9	3	30	58	10	10	46	20
600	0	4	24	29	1	16	53	47	3	22	13	10	2	24	55	36
700	0	5	8	34	11	24	42	45	10	10	55	22	7	9	4	52
800	0	5	52	39	10	2	31	42	4	29	37	33	11	23	14	8
900	0	6	36	44	8	10	20	40	11	18	19	45	4	7	23	24
1000	0	7	20	49	6	18	9	38	6	7	1	57	8	21	32	40

Menses cōmunes.

	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa
Januari.	1	0	33	18	1	18	28	6	1	15	0	53	0	1	38	30
februari.	1	28	9	11	1	27	24	26	1	20	50	4	0	3	7	27
Martius.	2	28	42	29	3	15	52	32	3	5	50	56	0	4	45	57
Aprilis.	3	28	16	39	4	21	10	2	4	7	47	55	0	6	21	16
Maius.	4	28	49	57	6	9	38	8	5	22	48	48	0	7	59	46
Iunius.	5	28	24	7	7	14	55	39	6	24	45	46	0	9	35	5
Iulius.	6	28	57	25	9	3	23	44	8	9	46	39	0	11	13	35
Augustus.	7	29	30	43	10	21	51	50	9	24	47	32	0	12	52	4
Septēber.	8	29	4	53	11	27	9	21	10	26	44	31	0	14	27	23
October.	9	29	38	11	1	15	37	26	0	11	45	23	0	16	5	53
Novēber.	10	29	12	21	2	20	54	57	1	13	42	22	0	17	41	12
December.	11	29	45	39	4	9	23	3	2	28	43	15	0	19	19	42

Continuatio tabule precedentis.

Menses Bifextiles.

	Solis.				Lune.				Argumenti Lune.				Lapetus draconis.			
	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa
Januari.	1	0	33	18	1	18	28	6	1	15	0	53	0	1	38	30
Februari.	1	29	8	19	2	10	35	1	2	3	53	58	0	3	10	48
Martius.	2	29	41	37	3	29	3	7	3	18	54	50	0	4	49	8
Aprilis.	3	29	15	47	5	4	20	37	4	20	51	49	0	6	24	27
Maius.	4	29	49	5	6	22	48	43	6	5	52	42	0	8	2	57
Junius.	5	29	23	15	7	28	6	14	7	7	49	40	0	9	38	16
Julius.	6	29	56	33	9	16	34	19	8	22	50	33	0	11	16	46
Augustus.	8	0	29	51	11	15	2	25	10	7	51	26	0	12	55	15
Septemb.	9	0	4	1	0	10	19	56	11	9	48	25	0	14	30	44
October.	10	0	37	19	1	28	48	1	0	24	49	17	0	16	9	4
Novemb.	11	0	11	29	3	4	5	32	1	26	46	16	0	17	44	23
December.	0	0	44	47	4	22	33	38	3	11	47	9	0	19	22	53

Indiebus.

Dies.	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa	ā	g	m	fa
1	0	0	59	8	0	13	10	35	0	13	3	54	0	0	3	11
2	0	1	58	17	0	26	21	10	0	26	7	48	0	0	6	22
3	0	2	57	25	1	9	31	45	1	9	11	42	0	0	9	32
4	0	3	56	33	1	22	42	20	1	22	15	36	0	0	12	43
5	0	4	55	42	2	5	52	55	2	5	19	30	0	0	15	53
6	0	5	54	50	2	19	3	30	2	18	23	24	0	0	19	4
7	0	6	53	58	3	2	14	5	3	1	27	18	0	0	22	14
8	0	7	52	7	3	15	24	40	3	14	31	12	0	0	25	25
9	0	8	52	15	3	28	35	15	3	27	35	6	0	0	28	36
10	0	9	51	23	4	11	45	50	4	10	39	0	0	0	31	46
11	0	10	50	32	4	24	56	25	4	23	42	54	0	0	34	57
12	0	11	49	40	5	8	7	0	5	6	46	47	0	0	38	8
13	0	12	48	48	5	21	17	35	5	19	50	41	0	0	41	18
14	0	13	47	57	6	4	28	10	6	2	54	35	0	0	44	29
15	0	14	47	5	6	17	38	45	6	15	58	29	0	0	47	40
16	0	15	46	13	7	0	49	20	6	29	2	23	0	0	50	50
17	0	16	45	22	7	13	59	55	7	12	6	17	0	0	54	1
18	0	17	44	30	7	27	10	30	7	25	10	11	0	0	57	11
19	0	18	43	38	8	10	21	5	8	8	14	5	0	1	0	22
20	0	19	42	47	8	23	31	40	8	21	17	59	0	1	3	33
21	0	20	41	55	9	6	42	15	9	4	21	53	0	1	6	43
22	0	21	41	3	9	19	52	50	9	17	25	47	0	1	9	54
23	0	22	40	12	10	3	3	25	10	0	29	41	0	1	13	5
24	0	23	39	20	10	16	14	0	10	13	33	35	0	1	16	15
25	0	24	38	28	10	29	24	36	10	26	37	29	0	1	19	26
26	0	25	37	36	11	12	35	11	11	9	41	23	0	1	22	37
27	0	26	36	45	11	25	45	46	11	22	45	17	0	1	25	47
28	0	27	35	53	0	8	56	21	0	5	49	11	0	1	28	58
29	0	28	35	1	0	22	6	56	0	18	53	5	0	1	32	8
30	0	29	34	10	1	5	17	31	1	1	56	59	0	1	35	19
31	1	0	33	18	1	18	28	6	1	15	0	53	0	1	38	30

Continuatio tabule precedēt In horis et minutis.

hora	Solis °			Lune °			Argumenti Lune °			Lapitis dia conis s ^o		
	g	m	fa	g	m	fa	g	m	fa	g	m	fa
1	0	2	28	0	32	56	0	32	40	0	0	8
2	0	4	56	1	5	53	1	5	19	0	0	16
3	0	7	24	1	38	49	1	37	59	0	0	24
4	0	9	51	2	11	46	2	10	39	0	0	32
5	0	12	19	2	44	42	2	43	19	0	0	40
6	0	14	47	3	17	39	3	15	58	0	0	48
7	0	17	15	3	50	35	3	48	38	0	0	56
8	0	19	43	4	23	32	4	21	18	0	1	4
9	0	22	11	4	56	28	4	53	58	0	1	11
10	0	24	38	5	29	25	5	26	37	0	1	19
11	0	27	6	6	2	21	5	59	17	0	1	27
12	0	29	34	6	35	18	6	31	57	0	1	35
13	0	32	2	7	8	14	7	4	37	0	1	43
14	0	34	30	7	41	10	7	37	16	0	1	51
15	0	36	58	8	14	7	8	9	56	0	1	59
16	0	39	26	8	47	3	8	42	36	0	2	7
17	0	41	53	9	20	0	9	15	16	0	2	15
18	0	44	21	9	52	56	9	47	55	0	2	23
19	0	46	49	10	25	53	10	20	53	0	2	31
20	0	49	17	10	58	49	10	53	15	0	2	39
21	0	51	45	11	31	46	11	25	55	0	2	47
22	0	54	13	12	4	42	11	58	34	0	2	55
23	0	56	40	12	37	39	12	31	14	0	3	3
24	0	59	8	13	10	35	13	3	54	0	3	11
25	1	1	36	13	43	31	13	36	34	0	3	19
26	1	4	4	14	16	28	14	9	13	0	3	27
27	1	6	32	14	49	24	14	41	53	0	3	34
28	1	9	0	15	22	21	15	14	33	0	3	42
29	1	11	28	15	55	17	15	47	13	0	3	50
30	1	13	55	16	28	14	16	19	52	0	3	58
31	1	16	23	17	1	10	16	52	32	0	4	6
32	1	18	51	17	34	7	17	25	12	0	4	14
33	1	21	19	18	7	3	17	57	52	0	4	22
34	1	23	47	18	40	0	18	30	31	0	4	30
35	1	26	15	19	12	56	19	3	11	0	4	38
36	1	28	42	19	45	53	19	35	51	0	4	46
37	1	31	10	20	18	49	20	8	31	0	4	54
38	1	33	38	20	51	45	20	41	10	0	5	2
39	1	36	6	21	24	42	21	13	50	0	5	10
40	1	38	34	21	57	38	21	46	30	0	5	18
41	1	41	2	22	30	35	22	19	10	0	5	26
42	1	43	30	23	3	31	22	51	49	0	5	34
43	1	45	57	23	36	28	23	24	29	0	5	42
44	1	48	25	24	9	24	23	57	9	0	5	49
45	1	50	53	24	42	21	24	29	49	0	5	57
46	1	53	21	25	15	17	25	2	29	0	6	5
47	1	55	49	25	48	14	25	35	8	0	6	13
48	1	58	17	26	21	10	26	7	48	0	6	21
49	2	0	44	26	54	6	26	40	28	0	6	29
50	2	3	12	27	27	3	27	13	7	0	6	37
51	2	5	40	27	59	59	27	45	47	0	6	45
52	2	8	8	28	32	56	28	18	27	0	6	53
53	2	10	36	29	5	52	28	51	7	0	7	1
54	2	13	4	29	38	49	29	23	46	0	7	9
55	2	15	32	30	11	45	29	56	26	0	7	17
56	2	17	59	30	44	42	30	29	6	0	7	25
57	2	20	27	31	17	38	31	1	46	0	7	33
58	2	22	55	31	50	35	31	34	25	0	7	41
59	2	25	23	32	23	31	32	7	5	0	7	49
60	2	27	51	32	56	28	32	39	45	0	7	57
	m	fa	ctia	m	fa	ctia	m	fa	ctia	m	fa	ctia

Tabula Equationis dierum.

Tabula Equationis dierum nouissime constituta
Presupponens Aegem solis in principio Cancrī
Et Declinationem Almeonis.

Die	Ari es γ	Au rus δ	Ge ml II	Can cer ♋	Leo ♌	Vir go ♍	Libra ♎	Scor pio ♏	Sagi tari ♐	Cap corn ♑	Aq rins ♒	Pi scis ♓
Die	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa
0	7 44	17 20	20 52	16 24	11 56	15 28	25 4	32 20	29 32	16 24	3 16	0 28
1	8 4	17 36	20 52	16 8	11 52	15 44	25 24	32 28	29 16	15 52	3 0	0 36
2	8 24	17 52	20 48	15 56	11 52	16 0	25 44	32 32	29 0	15 24	2 44	0 44
3	8 44	18 8	20 44	15 44	11 52	16 16	26 4	32 36	28 40	14 52	2 28	0 52
4	9 4	18 20	20 40	15 32	11 52	16 32	26 24	32 40	28 20	14 20	2 12	1 0
5	9 24	18 32	20 36	15 20	11 52	16 48	26 40	32 44	28 0	13 48	1 56	1 8
6	9 48	18 44	20 32	15 8	11 52	17 4	27 0	32 44	27 40	13 16	1 44	1 16
7	10 8	18 56	20 28	14 56	11 56	17 20	27 20	32 48	27 20	12 44	1 32	1 28
8	10 28	19 8	20 20	14 44	11 56	17 40	27 40	32 48	26 56	12 16	1 20	1 40
9	10 48	19 20	20 12	14 32	12 0	18 0	27 56	32 48	26 32	11 48	1 8	1 52
10	11 8	19 28	20 4	14 20	12 4	18 20	28 12	32 48	26 8	11 20	0 56	2 4
11	11 28	19 40	19 56	14 8	12 8	18 36	28 28	32 44	25 40	10 52	0 48	2 16
12	11 48	19 48	19 48	13 56	12 12	18 56	28 44	32 44	25 12	10 24	0 40	2 28
13	12 8	19 56	19 40	13 44	12 16	19 16	29 0	32 40	24 44	9 56	0 32	2 40
14	12 28	20 4	19 32	13 36	12 24	19 36	29 16	32 36	24 16	9 28	0 24	2 56
15	12 48	20 12	19 20	13 28	12 32	19 56	29 32	32 28	23 48	9 0	0 20	3 12
16	13 8	20 20	19 12	13 16	12 40	20 16	29 48	32 24	23 20	8 32	0 12	3 28
17	13 28	20 28	19 4	13 8	12 48	20 36	30 4	32 16	22 52	8 4	0 8	3 44
18	13 48	20 36	18 52	13 0	12 56	20 56	30 20	32 8	22 24	7 36	0 4	4 0
19	14 8	20 40	18 40	12 52	13 4	21 16	30 32	32 0	21 56	7 12	0 4	4 16
20	14 28	20 44	18 28	12 44	13 16	21 40	30 44	31 52	21 28	6 48	0 0	4 36
21	14 44	20 48	18 16	12 36	13 28	22 0	30 56	31 40	21 0	6 24	0 0	5 52
22	15 4	20 52	18 4	12 28	13 40	22 20	31 8	31 28	20 32	6 0	0 0	5 8
23	15 20	20 52	17 52	12 20	13 52	22 40	31 20	31 16	20 0	5 36	0 0	5 20
24	15 40	20 56	17 40	12 16	14 4	23 0	31 32	31 4	19 28	5 12	0 4	5 44
25	15 56	20 56	17 28	12 12	14 16	23 20	31 40	30 52	18 56	4 52	0 4	6 4
26	16 16	20 56	17 16	12 8	14 28	23 44	31 48	30 36	18 24	4 32	0 8	6 24
27	16 32	20 56	17 4	12 4	14 40	24 4	32 4	30 20	17 52	4 12	0 12	6 44
28	16 48	20 56	16 52	12 0	14 56	24 24	32 4	30 4	17 24	3 52	0 16	7 4
29	17 4	20 56	16 40	11 56	15 12	24 44	32 12	29 48	16 52	3 32	0 20	7 24
30	17 20	20 56	16 24	11 56	15 28	25 4	32 20	29 32	16 24	3 16	0 28	7 44

Tabula Equationis Solis.

0 1 2 3 4 5																	
D																	
Argumenti Solis Gradus	Equa- tio		vnimi nuto.		Equa- tio		vnimi nuto.		Equa- tio		vnimi nuto.		Equa- tio		vnimi nuto.		Argumenti Solis Gradus
	g m	2 fa tua	g m	2 fa tua	g m	2 fa tua	g m	2 fa tua	g m	2 fa tua	g m	2 fa tua	g m	2 fa tua			
0 0	0 0 0	2 11	1 2 55	1 54	1 50 45	1 9	2 9 54	0 4	1 54 57	1 6	1 7 11	2 1	30 0				
0 10	0 0 22		1 3 14		1 50 56		2 9 55		1 54 46		1 6 51		29 50				
0 20	0 0 44		1 3 33		1 51 7		2 9 56		1 54 34		1 6 31		29 40				
0 30	0 1 5		1 3 52		1 51 18		2 9 56		1 54 22		1 6 11		29 30				
0 40	0 1 27		1 4 11		1 51 29		2 9 57		1 54 10		1 5 51		29 20				
0 50	0 1 49		1 4 30		1 51 40		2 9 57		1 53 58		1 5 31		29 10				
1 0	0 2 10		1 4 49	1 53	1 51 51	1 7	2 9 58	0 2	1 53 46	1 9	1 5 10	2 3	29 0				
1 10	0 2 32		1 5 8		1 52 2		2 9 59		1 53 35		1 4 50		28 50				
1 20	0 2 53		1 5 27		1 52 13		2 9 59		1 53 23		1 4 29		28 40				
1 30	0 3 15		1 5 46		1 52 24		2 9 59		1 53 11		1 4 9		28 30				
1 40	0 3 36		1 6 4		1 52 35		2 9 0		1 52 59		1 3 48		28 20				
1 50	0 3 58		1 6 23		1 52 46		2 9 0		1 52 47		1 3 28		28 10				
2 0	0 4 19		1 6 42	1 52	1 52 56	1 5	2 9 0	0 1	1 52 35	1 11	1 3 7	2 4	28 0				
2 10	0 4 41		1 7 1		1 53 7		2 9 0		1 52 24		1 2 47		27 50				
2 20	0 5 2		1 7 20		1 53 18		2 9 0		1 52 12		1 2 26		27 40				
2 30	0 5 23		1 7 38		1 53 28		2 9 0		1 52 0		1 2 5		27 30				
2 40	0 5 45		1 7 57		1 53 39		2 9 0		1 51 48		1 1 45		27 20				
2 50	0 6 6		1 8 16		1 53 50		2 9 0		1 51 36		1 1 24		27 10				
3 0	0 6 27		1 8 34		1 54 0	1 3	2 9 0	0 3	1 51 24	1 13	1 1 3	2 5	27 0				
3 10	0 6 49		1 8 53		1 54 11		2 9 0		1 51 12		1 0 42		26 50				
3 20	0 7 10		1 9 12		1 54 22		2 9 0		1 51 0		1 0 21		26 40				
3 30	0 7 32		1 9 30		1 54 33		2 9 0		1 50 48		1 0 1		26 30				
3 40	0 7 53		1 9 49		1 54 44		2 9 0		1 50 36		0 59 40		26 20				
3 50	0 8 15		1 10 8		1 54 55		2 9 0		1 50 24		0 59 19		26 10				
4 0	0 8 36		1 10 26	1 51	1 55 6	1 1	2 9 0	0 6	1 50 12	1 15	0 58 38	2 6	26 0				
4 10	0 8 58		1 10 45		1 55 17		2 9 0		1 50 0		0 58 37		25 50				
4 20	0 9 19		1 11 3		1 55 27		2 9 0		1 49 48		0 58 16		25 40				
4 30	0 9 40		1 11 22		1 55 38		2 9 0		1 49 36		0 57 55		25 30				
4 40	0 10 2		1 11 40		1 55 48		2 9 0		1 49 24		0 57 34		25 20				
4 50	0 10 23		1 11 59		1 55 59		2 9 0		1 49 12		0 57 13		25 10				
5 0	0 10 44		1 12 17	1 50	1 56 9	1 0	2 9 0	0 8	1 48 59	1 17	0 56 52	2 8	25 0				
5 10	0 11 6		1 12 36		1 56 19		2 9 0		1 48 47		0 56 31		24 50				
5 20	0 11 27		1 12 54		1 56 29		2 9 0		1 48 35		0 56 10		24 40				
5 30	0 11 49		1 13 12		1 56 39		2 9 0		1 48 23		0 55 48		24 30				
5 40	0 12 10		1 13 31		1 56 49		2 9 0		1 48 11		0 55 27		24 20				
5 50	0 12 32		1 13 49		1 56 59		2 9 0		1 47 59		0 55 6		24 10				
6 0	0 12 53	2 10	1 14 7	1 49	1 57 9	1 58	2 9 0	1 10	1 47 46	1 19	0 54 45	2 9	24 0				
6 10	0 13 15		1 14 26		1 57 18		2 9 0		1 47 32		0 54 23		23 50				
6 20	0 13 36		1 14 44		1 57 27		2 9 0		1 47 18		0 54 1		23 40				
6 30	0 13 58		1 15 2		1 57 36		2 9 0		1 47 4		0 53 40		23 30				
6 40	0 14 19		1 15 20		1 57 45		2 9 0		1 46 49		0 53 18		23 20				
6 50	0 14 41		1 15 38		1 57 54		2 9 0		1 46 35		0 52 57		23 10				
7 0	0 15 2		1 15 56	1 47	1 58 2	1 56	2 9 0	1 11	1 46 20	1 21	0 52 35	2 10	23 0				
7 10	0 15 24		1 16 14		1 58 11		2 9 0		1 46 6		0 52 14		22 50				
7 20	0 15 45		1 16 32		1 58 19		2 9 0		1 45 51		0 51 52		22 40				
7 30	0 16 6		1 16 50		1 58 28		2 9 0		1 45 37		0 51 31		22 30				

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Argumenti Solis Gradus													

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Tabula Equationis Solis.

Argumenti Solis Gra ^o Min ^a	0		1		2		3		4		5	
	Equa- tio		Equa- tio		Equa- tio		Equa- tio		Equa- tio		Equa- tio	
	g ^o m ⁱ	2 ^a f ^a t ^a	g ^o m ⁱ	2 ^a f ^a t ^a	g ^o m ⁱ	2 ^a f ^a t ^a	g ^o m ⁱ	2 ^a f ^a t ^a	g ^o m ⁱ	2 ^a f ^a t ^a	g ^o m ⁱ	2 ^a f ^a t ^a
7 30	0 16 21	2 10	1 16 50		1 58 17		2 9 26		1 45 32		0 51 31	22 30
7 40	0 16 43		1 17 7		1 58 27		2 9 24		1 45 18		0 51 9	22 20
7 50	0 17 4		1 17 25		1 58 36		2 9 22		1 45 5		0 50 48	22 10
8 0	0 17 26		1 17 43	1 45	1 58 45	0 54	2 9 19	0 15	1 44 51	1 24	0 50 26	2 10
8 10	0 17 48		1 18 1		1 58 54		2 9 17		1 44 37		0 50 5	21 50
8 20	0 18 9		1 18 18		1 59 3		2 9 14		1 44 23		0 49 43	21 40
8 30	0 18 31		1 18 37		1 59 12		2 9 12		1 44 9		0 49 21	21 30
8 40	0 18 53		1 18 53		1 59 21		2 9 9		1 43 55		0 49 0	21 20
8 50	0 19 14		1 19 11		1 59 30		2 9 7		1 43 41		0 48 38	21 10
9 0	0 19 36		1 19 28	1 43	1 59 39	0 52	2 9 4	0 17	1 43 27	1 26	0 48 16	2 11
9 10	0 19 58		1 19 46		1 59 48		2 9 1		1 43 13		0 47 54	21 0
9 20	0 20 19		1 20 3		1 59 57		2 8 58		1 42 59		0 47 32	20 40
9 30	0 20 41		1 20 20		2 0 5		2 8 56		1 42 44		0 47 11	20 30
9 40	0 21 3		1 20 37		2 0 14		2 8 53		1 42 30		0 46 49	20 20
9 50	0 21 24		1 20 54		2 0 23		2 8 50		1 42 16		0 46 27	20 10
10 0	0 21 46	2 9	1 21 11	1 42	2 0 31	0 50	2 8 47	0 19	1 42 1	1 28	0 46 5	2 12
10 10	0 22 8		1 21 28		2 0 40		2 8 44		1 41 47		0 45 43	19 50
10 20	0 22 29		1 21 45		2 0 48		2 8 41		1 41 32		0 45 21	19 40
10 30	0 22 51		1 22 2		2 0 56		2 8 38		1 41 17		0 44 59	19 30
10 40	0 23 12		1 22 19		2 1 5		2 8 35		1 41 3		0 44 37	19 20
10 50	0 23 34		1 22 36		2 1 13		2 8 32		1 40 48		0 44 15	19 10
11 0	0 23 55		1 22 53	1 41	2 1 21	0 48	2 8 28	0 22	1 40 33	1 30	0 43 53	2 13
11 10	0 24 17		1 23 10		2 1 29		2 8 25		1 40 18		0 43 31	18 50
11 20	0 24 38		1 23 27		2 1 37		2 8 21		1 40 3		0 43 9	18 40
11 30	0 25 0		1 23 44		2 1 45		2 8 17		1 39 48		0 42 47	18 30
11 40	0 25 21		1 24 0		2 1 53		2 8 14		1 39 33		0 42 25	18 20
11 50	0 25 43		1 24 17		2 2 1		2 8 10		1 39 18		0 42 3	18 10
12 0	0 26 4	2 8	1 24 34	1 40	2 2 9	0 43	2 8 6	0 25	1 39 3	1 31	0 41 40	2 14
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12 20	0 26 47		1 25 8		2 2 24		2 7 58		1 38 33		0 40 56	17 40
12 30	0 27 8		1 25 24		2 2 32		2 7 54		1 38 18		0 40 33	17 30
12 40	0 27 29		1 25 41		2 2 39		2 7 50		1 38 3		0 40 11	17 20
12 50	0 27 51		1 25 58		2 2 47		2 7 46		1 37 48		0 39 49	17 10
13 0	0 28 12		1 26 14	1 38	2 2 54	0 45	2 7 41	0 27	1 37 33	1 33	0 39 26	2 15
13 10	0 28 33		1 26 31		2 3 2		2 7 37		1 37 17		0 39 4	16 50
13 20	0 28 55		1 26 47		2 3 9		2 7 32		1 37 1		0 38 41	16 40
13 30	0 29 16		1 27 3		2 3 16		2 7 28		1 36 46		0 38 19	16 30
13 40	0 29 37		1 27 20		2 3 23		2 7 23		1 36 30		0 37 56	16 20
13 50	0 29 59		1 27 36		2 3 30		2 7 19		1 36 15		0 37 34	16 10
14 0	0 30 20	2 7	1 27 52	1 37	2 3 37	0 40	2 7 14	0 30	1 35 59	1 35	0 37 11	2 16
14 10	0 30 41		1 28 9		2 3 44		2 7 9		1 35 43		0 36 49	15 50
14 20	0 31 2		1 28 25		2 3 51		2 7 4		1 35 27		0 36 26	15 40
14 30	0 31 24		1 28 41		2 3 57		2 6 59		1 35 12		0 36 3	15 30
14 40	0 31 45		1 28 57		2 4 4		2 6 54		1 34 56		0 35 41	15 20
14 50	0 32 6		1 29 13		2 4 11		2 6 49		1 34 40		0 35 18	15 10
15 0	0 32 27		1 29 29	1 35	2 4 17	0 38	2 6 44	0 32	1 34 24	1 37	0 34 55	2 16

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Argumenti
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Tabula Equationis Solis.

		0			1			2			3			4			5		
		Equa- tio			vni- muto.			Equa- tio			vni- muto.			Equa- tio			vni- muto.		
Argumēti Scola	Gradu Scola	g	m	fa	g	m	fa	g	m	fa	g	m	fa	g	m	fa	g	m	fa
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15	10	0 32	48		1 29	45		2 4	24		2 6	39		1 34	8		0 34	33	
15	20	0 33	9		1 30	1		2 4	30		2 6	34		1 33	52		0 34	10	
15	30	0 33	31		1 30	17		2 4	36		2 6	28		1 33	36		0 33	47	
15	40	0 33	52		1 30	33		2 4	43		2 6	23		1 33	20		0 33	25	
15	50	0 34	13		1 30	48		2 4	49		2 6	18		1 33	4		0 33	2	
16	0	0 34	34	2 6	1 31	4	1 34	2 4	55	0 36	2 6	12	0 34	1 32	47	1 39	0 32	39	2 17
16	10	0 34	55		1 31	20		2 5	1		2 6	7		1 32	31		0 32	16	
16	20	0 35	16		1 31	36		2 5	7		2 6	1		1 32	14		0 31	53	
16	30	0 35	37		1 31	51		2 5	13		2 5	55		1 31	58		0 31	31	
16	40	0 35	58		1 32	7		2 5	19		2 5	50		1 31	41		0 31	8	
16	50	0 36	19		1 32	23		2 5	25		2 5	44		1 31	25		0 30	45	
17	0	0 36	40		1 32	38	1 33	2 5	31	0 34	2 5	38	0 37	1 31	8	1 41	0 30	22	2 18
17	10	0 37	1		1 32	54		2 5	37		2 5	32		1 30	51		0 29	59	
17	20	0 37	22		1 33	9		2 5	43		2 5	26		1 30	34		0 29	36	
17	30	0 37	43		1 33	25		2 5	48		2 5	20		1 30	18		0 29	13	
17	40	0 38	4		1 33	40		2 5	54		2 5	14		1 30	1		0 28	50	
17	50	0 38	25		1 33	56		2 6	0		2 5	8		1 29	44		0 28	27	
18	0	0 38	46	2 5	1 34	11	1 31	2 6	5	0 32	2 5	1	0 39	1 29	27	1 42	0 28	4	12 0
18	10	0 39	7		1 34	27		2 6	11		2 4	55		1 29	10		0 27	41	
18	20	0 39	28		1 34	42		2 6	16		2 4	48		1 28	53		0 27	18	
18	30	0 39	49		1 34	57		2 6	21		2 4	42		1 28	36		0 26	55	
18	40	0 40	9		1 35	12		2 6	27		2 4	35		1 28	19		0 26	32	
18	50	0 40	30		1 35	27		2 6	32		2 4	29		1 28	2		0 26	9	
19	0	0 40	51		1 35	42	1 29	2 6	37	0 29	2 4	22	0 41	1 27	45	1 44	0 25	46	2 19
19	10	0 41	12		1 35	57		2 6	42		2 4	15		1 27	28		0 25	23	
19	20	0 41	33		1 36	12		2 6	47		2 3	8		1 27	11		0 25	0	
19	30	0 41	54		1 36	27		2 6	52		2 4	2		1 26	53		0 24	37	
19	40	0 42	14		1 36	41		2 6	56		2 3	55		1 26	36		0 24	14	
19	50	0 42	35		1 36	56		2 7	1		2 3	48		1 26	19		0 23	51	
20	0	0 42	56	2 4	1 37	11	1 27	2 7	6	0 27	2 3	41	0 43	1 26	1	1 46	0 23	27	2 20
20	10	0 43	17		1 37	26		2 7	11		2 3	34		1 25	44		0 23	4	
20	20	0 43	37		1 37	40		2 7	15		2 3	27		1 25	26		0 22	41	
20	30	0 43	58		1 37	55		2 7	20		2 3	20		1 25	8		0 22	17	
20	40	0 44	19		1 38	9		2 7	24		2 3	13		1 24	51		0 21	54	
20	50	0 44	39		1 38	24		2 7	29		2 3	6		1 24	33		0 21	31	
21	0	0 45	0	2 3	1 38	38	1 26	2 7	33	0 25	2 2	58	0 46	1 24	15	1 48	0 21	7	
21	10	0 45	21		1 38	57		2 7	38		2 2	51		1 23	57		0 20	44	
21	20	0 45	41		1 39	7		2 7	42		2 2	43		1 23	39		0 20	21	
21	30	0 46	2		1 39	21		2 7	46		2 2	35		1 23	21		0 19	57	
21	40	0 46	22		1 39	36		2 7	50		2 2	28		1 23	3		0 19	34	
21	50	0 46	43		1 39	50		2 7	54		2 2	20		1 22	45		0 19	11	
22	0	0 47	3	2 2	1 40	4	1 24	2 7	58	0 23	2 2	12	0 48	1 22	27	1 49	0 18	47	
22	10	0 47	23		1 40	18		2 8	2		2 2	4		1 22	9		0 18	24	
22	20	0 47	44		1 40	32		2 8	6		2 2	16		1 22	51		0 18	1	
22	30	0 48	4		1 40	46		2 8	10		2 1	48		1 21	33		0 17	37	2 20

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Argumenti
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Tabula Equationis Solis.

Argumenti Solis Gradus		0 1 2 3 4 5 Signa												Argumenti Solis Gradus					
Equa- tio		vni mi nuto.		Equa- tio		vni mi nuto.		Equa- tio		vni mi nuto.		Equa- tio		vni mi nuto.		Equa- tio		vni mi nuto.	
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22 30	0 48	4	2	1 40	46			2 8	10			2 1	48			1 21	33		
22 40	0 48	24		1 41	0			2 8	13			2 1	40			1 21	15		
22 50	0 48	45		1 41	14			2 8	17			2 1	32			1 20	57		
23 0	0 49	5	2	1 41	28	1 22		2 8	21	0 21		2 1	24	0 51		1 20	38	1 51	
23 10	0 49	25		1 41	42			2 8	25			2 1	16			1 20	20		
23 20	0 49	45		1 41	56			2 8	28			2 1	7			1 20	10		
23 30	0 50	6		1 42	9			2 8	32			2 0	59			1 19	43		
23 40	0 50	26		1 42	23			2 8	35			2 0	50			1 19	24		
23 50	0 50	46		1 42	37			2 8	39			2 0	42			1 19	6		
24 0	0 51	6	2	1 42	50	1 20		2 8	42	0 18		2 0	33	0 53		1 18	47	1 52	
24 10	0 51	26		1 43	4			2 8	45			2 0	24			1 18	29		
24 20	0 51	46		1 43	17			2 8	48			2 0	15			1 18	10		
24 30	0 52	6		1 43	30			2 8	51			2 0	7			1 17	51		
24 40	0 52	26		1 43	44			2 8	54			1 59	58			1 17	33		
24 50	0 52	46		1 43	57			2 8	57			1 59	49			1 17	14		
25 0	0 53	6	1 59	1 44	10	1 19		2 9	0	16		1 59	40	0 55		1 16	55	1 54	
25 10	0 53	26		1 44	24			2 9	3			1 59	31			1 16	36		
25 20	0 53	46		1 44	37			2 9	6			1 59	22			1 16	17		
25 30	0 54	6		1 44	50			2 9	8			1 59	13			1 15	58		
25 40	0 54	25		1 45	3			2 9	11			1 59	4			1 15	39		
25 50	0 54	45		1 45	16			2 9	14			1 58	55			1 15	20		
26 0	0 55	5		1 45	29	1 17		2 9	16	0 13		1 58	45	0 57		1 15	1	1 55	
26 10	0 55	25		1 45	42			2 9	19			1 58	36			1 14	42		
26 20	0 55	45		1 45	55			2 9	21			1 58	26			1 14	23		
26 30	0 56	5		1 46	8			2 9	24			1 58	17			1 14	4		
26 40	0 56	24		1 46	20			2 9	25			1 58	7			1 13	45		
26 50	0 56	44		1 46	33			2 9	27			1 57	58			1 13	26		
27 0	0 57	4	1 58	1 46	46	1 15		2 9	29	0 11		1 57	48	1 0		1 13	6	1 57	
27 10	0 57	24		1 46	59			2 9	31			1 57	38			1 12	47		
27 20	0 57	43		1 47	11			2 9	33			1 57	28			1 12	27		
27 30	0 58	3		1 47	24			2 9	35			1 57	18			1 12	8		
27 40	0 58	23		1 47	36			2 9	36			1 57	8			1 11	48		
27 50	0 58	42		1 47	49			2 9	38			1 56	58			1 11	29		
28 0	0 59	2	1 57	1 48	1	1 14		2 9	40	0 8		1 56	48	1 2		1 11	9	1 58	
28 10	0 59	22		1 48	14			2 9	42			1 56	38			1 10	50		
28 20	0 59	41		1 48	26			2 9	43			1 56	28			1 10	30		
28 30	1 0	1		1 48	38			2 9	44			1 56	17			1 10	10		
28 40	1 0	20		1 48	41			2 9	46			1 56	7			1 9	51		
28 50	1 0	40		1 49	3			2 9	47			1 55	57			1 9	31		
29 0	1 0	59	1 56	1 49	15	1 11		2 9	48	0 6		1 55	46	1 9		1 9	11	2 0	
29 10	1 1	18		1 49	27			2 9	49			1 55	36			1 8	51		
29 20	1 1	38		1 49	39			2 9	50			1 55	25			1 8	31		
29 30	1 1	57		1 49	51			2 9	51			1 55	14			1 8	11		
29 40	1 2	16		1 50	2			2 9	52			1 55	4			1 7	51		
29 50	1 2	36		1 50	14			2 9	53			1 54	53			1 7	31		
30 0	1 2	55		1 50	26	1 9		2 9	54			1 54	42	1 7		1 7	11	2 1	

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Tabula Equatio:

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Tabula Equatio

Signa

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Centrum
Argumenti

Centr. Argumenti ver.	Equatio Lentri.	Altitudo proportionalia.	Altitudo Diametri.	Equatio Argu. metri.	Corrida vni minuto.	Altitudo proportionalia.	Altitudo Diametri.	Equatio Lentri.	Corrida vni minuto.	Altitudo proportionalia.	Altitudo Diametri.	Equatio Argu. metri.	Corrida vni minuto.	Centr. Argumenti ver.
g m	g m	g m	g m	g m	g m	g m	g m	g m	g m	g m	g m	g m	g m	g m
7 30	1 6	0	0 18	0 35 33	4 42	5 29	5 1 26	2 48 21	3 54	9 33	16	2 13	4 23 55	2 12
7 40	1 8	0	0 18	0 36 20		5 30	5 1 26	2 49 0		9 34	16	2 14	4 24 18	22 20
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8 0	1 11	0	0 19	0 37 54		5 33	5 1 27	2 50 19		9 37	16	2 14	4 25 2	22 0
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8 50	1 19	0	0 21	0 41 50		5 40	5 1 29	2 53 35		9 43	16	2 15	4 26 51	21 10
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9 10	1 22	0	0 22	0 43 24		5 43	5 1 29	2 54 53		9 45	16	2 15	4 27 33	20 50
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11 0	1 38	0	0 26	0 52 0		5 59	6 1 33	3 1 58		9 59	17	2 17	4 31 20	19 0
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11 20	1 41	0	0 27	0 53 34		6 2	6 1 34	3 3 14		10 1	17	2 18	4 32 0	18 40
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14 10	2 6	1	0 33	1 6 46		6 26	6 1 39	3 13 50		10 21	19	2 20	4 37 17	15 50
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14 50	2 12	1	0 35	1 9 52		6 32	7 1 40	3 16 15		10 26	19	2 21	4 38 26	15 10
15 0	2 13	1	0 35	1 10 38		6 33	7 1 40	3 16 51		10 27	19	2 21	4 38 44	15 0

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L'etier d'Argumēt veri										L'etier d'Argumēt veri										L'etier d'Argumēt veri										L'etier d'Argumēt veri									
Equa tio Lc tri.					Equa tio Lc tri.					Equa tio Lc tri.					Equa tio Lc tri.					Equa tio Lc tri.					Equa tio Lc tri.					Equa tio Lc tri.									
L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri									
L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri					L'etier d'Argumēt veri									
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8 40	12 38	31	2 39	4 55 12		12 37	47	2 19	4 3 1	3 6	6 59	57	1 11	1 56 1		21 10	12 39	32	2 39	4 55 8	12 36	47	2 19	4 2 30	6 56	57	1 10	1 55 9	21 0	21 10									
9 0	12 39	32	2 39	4 55 4		12 35	47	2 19	4 1 59		6 54	57	1 10	1 54 18		20 50	12 40	32	2 39	4 55 1	12 34	47	2 19	4 1 28	6 51	57	1 9	1 53 26	20 40	20 50									
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15 0	12 56	35	2 40	4 51 22		11 54	49	2 10	4 42 17		5 8	59	0 52	1 22 26		15 0	12 56	35	2 40	4 51 22	11 51	49	2 10	4 42 17	5 8	59	0 51	1 21 26	15 0	15 10									

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Cetier et Arguement veri		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.		Equa tio Len tri.		Ductifitas Diametri.		Ductifitas proportionalia.	
g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m	g	m
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18	40	2	45	1	0	44	1	27	29	7	4	8	146	3	29	49	10	53	21	2	25	4	44	25			11	20									
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19	0	2	48	1	0	45	1	29	0	7	7	8	147	3	30	57	10	55	21	2	25	4	44	53			11	0									
19	10	2	50	1	0	45	1	29	46	4	30	8	147	3	31	31	10	56	21	2	25	4	45	7			10	50									
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19	30	2	53	1	0	46	1	31	16	7	11	8	148	3	32	39	10	58	21	2	26	4	45	34			10	30									
19	40	2	54	2	0	46	1	32	2	7	12	9	148	3	33	13	11	0	22	2	26	4	45	47			10	20									
19	50	2	56	2	0	47	1	32	47	7	14	9	148	3	33	47	11	1	22	2	26	4	46	0			10	10									
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20	30	3	1	2	0	48	1	35	48	7	19	9	149	3	36	0	11	5	22	2	27	4	46	50			9	30									
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21	10	3	7	2	0	50	1	38	48	7	25	9	149	3	38	13	11	9	22	2	27	4	47	38			8	50									
21	20	3	8	2	0	50	1	39	33	7	26	9	150	3	38	46	11	10	22	2	27	4	47	50			8	40									
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22	0	3	14	2	0	52	1	42	33	7	32	9	151	3	40	57	3	12	11	5	22	2	48	35			8	0									
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22	30	3	19	2	0	53	1	44	47	7	36	9	152	3	42	34	11	18	22	2	29	4	49	8			7	30									

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Tabula Equatio:

Signa		0		1		2		Entrum Argumenti	
Cetera Argumenti ver		Cetera Argumenti ver		Cetera Argumenti ver		Cetera Argumenti ver		Cetera Argumenti ver	
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22 40	3 20	2 0 52	1 45 32	7 37	7 47	10 1 52	3 43 6	11 19	22 2 29
22 50	3 22	2 0 54	1 46 17	7 39	10 1 53	3 43 38	11 20	23 2 29	4 49 28
23 0	3 23	2 0 54	1 47 1	4 24	7 40	10 1 53	3 44 10	11 21	23 2 29
23 10	3 24	2 0 55	1 47 46	7 41	10 1 53	3 44 42	11 22	23 2 29	4 49 59
23 20	3 26	2 0 55	1 48 30	7 43	10 1 53	3 45 14	11 23	23 2 29	4 49 59
23 30	3 27	2 0 56	1 49 14	7 44	10 1 54	3 45 46	11 24	23 2 30	4 50 10
23 40	3 28	2 0 56	1 49 59	7 45	10 1 54	3 46 18	11 25	23 2 30	4 50 20
23 50	3 30	2 0 57	1 50 43	7 47	10 1 54	3 46 49	11 26	23 2 30	4 50 31
24 0	3 31	2 0 57	1 51 27	7 48	10 1 54	3 47 20	11 27	23 2 30	4 50 41
24 10	3 33	2 0 57	1 52 12	7 49	10 1 54	3 47 51	11 28	23 2 30	4 50 51
24 20	3 34	2 0 58	1 52 56	7 51	10 1 55	3 48 22	11 29	23 2 30	4 51 1
24 30	3 36	2 0 58	1 53 40	7 52	10 1 55	3 48 53	11 30	23 2 31	4 51 11
24 40	3 37	2 0 58	1 54 24	7 53	10 1 55	3 49 24	11 31	24 2 31	4 51 20
24 50	3 39	2 0 59	1 55 8	7 55	10 1 56	3 49 55	11 32	24 2 31	4 51 29
25 0	3 40	2 0 59	1 55 52	7 56	10 1 56	3 50 26	11 33	24 2 31	4 51 39
25 10	3 42	2 0 59	1 56 36	7 57	10 1 56	3 50 57	11 34	24 2 31	4 51 47
25 20	3 43	2 1 0	1 57 20	7 59	10 1 57	3 51 28	11 35	24 2 31	4 51 56
25 30	3 45	2 1 0	1 58 4	8 0	10 1 57	3 51 59	11 36	24 2 32	4 52 4
25 40	3 46	3 1 1	1 58 48	8 1	11 1 57	3 52 29	11 37	24 2 32	4 52 12
25 50	3 48	3 1 1	1 59 32	8 3	11 1 58	3 52 59	11 38	24 2 32	4 52 20
26 0	3 49	3 1 1	2 0 15	8 4	11 1 58	3 53 29	11 39	24 2 32	4 52 28
26 10	3 50	3 1 1	2 0 59	8 5	11 1 58	3 54 0	11 40	24 2 32	4 52 36
26 20	3 52	3 1 2	2 1 43	8 7	11 1 58	3 54 30	11 41	24 2 32	4 52 43
26 30	3 53	3 1 2	2 2 26	8 8	11 1 58	3 55 0	11 42	24 2 33	4 52 50
26 40	3 54	3 1 2	2 3 10	8 9	11 1 59	3 55 30	11 43	24 2 33	4 53 57
26 50	3 56	3 1 3	2 3 54	8 11	11 1 59	3 56 0	11 44	25 2 33	4 54 4
27 0	3 57	3 1 3	2 4 37	4 18	8 12	11 1 59	3 56 30	11 45	25 2 33
27 10	3 59	3 1 4	2 5 21	8 13	11 1 59	3 57 0	11 46	25 2 33	4 53 18
27 20	4 0	3 1 4	2 6 4	8 15	11 2 0	3 57 30	11 47	25 2 33	4 53 25
27 30	4 2	3 1 5	2 6 47	8 16	11 2 0	3 57 59	11 48	25 2 34	4 53 32
27 40	4 3	3 1 5	2 7 31	8 17	11 2 0	3 58 28	11 49	25 2 34	4 53 38
27 50	4 5	3 1 6	2 8 14	8 19	11 2 1	3 58 57	11 50	25 2 34	4

[illegible]

Tabula Veri motus Solis In horis & minutis.

	0 0	0 15	1 0	1 15	2 0	2 15	3 0	3 15	4 0	4 15	5 0	5 15	6 0
Argumenti Lune Signa et Gradus													
	12 0	11 15	11 0	10 15	10 0	9 15	9 0	8 15	8 0	7 15	7 0	6 15	6 0
h m	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa	m fa
0 1	0 2	0 2	0 2	0 2	0 2	0 2	0 2	0 2	0 3	0 3	0 3	0 3	0 3
0 2	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5	0 5
0 3	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 7	0 8	0 8	0 8	0 8	0 8
0 4	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10	0 10
0 5	0 12	0 12	0 12	0 12	0 12	0 12	0 12	0 12	0 13	0 13	0 13	0 13	0 13
0 6	0 14	0 14	0 14	0 14	0 14	0 14	0 14	0 14	0 14	0 15	0 15	0 15	0 15
0 7	0 17	0 17	0 17	0 17	0 17	0 17	0 17	0 17	0 17	0 18	0 18	0 18	0 18
0 8	0 19	0 19	0 19	0 19	0 19	0 20	0 20	0 20	0 20	0 20	0 20	0 20	0 21
0 9	0 21	0 21	0 21	0 21	0 22	0 22	0 22	0 22	0 23	0 23	0 23	0 23	0 23
0 10	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 24	0 25	0 25	0 26	0 26	0 26
0 11	0 26	0 26	0 26	0 26	0 27	0 27	0 27	0 27	0 28	0 28	0 28	0 28	0 29
0 12	0 29	0 29	0 29	0 29	0 29	0 29	0 30	0 30	0 30	0 30	0 31	0 31	0 31
0 13	0 31	0 31	0 31	0 31	0 31	0 31	0 32	0 32	0 32	0 33	0 33	0 33	0 33
0 14	0 33	0 33	0 33	0 33	0 34	0 34	0 34	0 34	0 35	0 35	0 35	0 36	0 36
0 15	0 36	0 36	0 36	0 36	0 36	0 37	0 37	0 37	0 38	0 38	0 38	0 38	0 38
0 16	0 38	0 38	0 38	0 38	0 39	0 39	0 39	0 40	0 40	0 40	0 41	0 41	0 41
0 17	0 40	0 40	0 40	0 41	0 41	0 41	0 42	0 42	0 43	0 43	0 43	0 43	0 44
0 18	0 43	0 43	0 43	0 43	0 44	0 44	0 44	0 45	0 45	0 46	0 46	0 46	0 46
0 19	0 45	0 45	0 45	0 46	0 46	0 46	0 47	0 47	0 48	0 48	0 48	0 49	0 49
0 20	0 48	0 48	0 48	0 48	0 49	0 49	0 49	0 50	0 50	0 51	0 51	0 51	0 51
0 21	0 50	0 50	0 50	0 50	0 51	0 51	0 52	0 52	0 53	0 53	0 54	0 54	0 54
0 22	0 52	0 52	0 52	0 53	0 53	0 54	0 54	0 55	0 55	0 56	0 56	0 56	0 56
0 23	0 55	0 55	0 55	0 55	0 56	0 56	0 57	0 57	0 58	0 58	0 59	0 59	0 59
0 24	0 57	0 57	0 57	0 58	0 58	0 59	0 59	1 0	1 0	1 1	1 1	1 1	1 2
0 25	0 59	0 59	1 0	1 0	1 0	1 1	1 2	1 2	1 3	1 3	1 4	1 4	1 4
0 26	1 2	1 2	1 2	1 2	1 3	1 3	1 4	1 5	1 5	1 6	1 6	1 6	1 7
0 27	1 4	1 4	1 4	1 5	1 5	1 6	1 7	1 7	1 8	1 8	1 9	1 9	1 9
0 28	1 7	1 7	1 7	1 7	1 8	1 8	1 9	1 10	1 10	1 11	1 11	1 12	1 12
0 29	1 9	1 9	1 9	1 10	1 10	1 11	1 11	1 12	1 13	1 13	1 14	1 14	1 14
0 30	1 11	1 11	1 12	1 12	1 13	1 13	1 14	1 15	1 15	1 16	1 17	1 17	1 17
1 0	2 23	2 23	2 23	2 24	2 25	2 26	2 28	2 29	2 31	2 32	2 33	2 33	2 34
1 30	3 34	3 34	3 35	3 35	3 38	3 40	3 42	3 44	3 46	3 48	3 50	3 50	3 51
2 0	4 45	4 45	4 47	4 47	4 50	4 53	4 56	4 58	5 1	5 3	5 6	5 7	5 8
2 30	5 56	5 56	5 58	5 59	6 3	6 6	6 9	6 13	6 17	6 19	6 23	6 24	6 25
3 0	7 8	7 8	7 10	7 11	7 15	7 19	7 23	7 27	7 32	7 35	7 39	7 40	7 41
3 30	8 19	8 19	8 22	8 23	8 28	8 32	8 37	8 42	8 47	8 51	8 56	8 57	8 58
4 0	9 30	9 30	9 33	9 34	9 41	9 45	9 51	9 56	10 3	10 7	10 12	10 14	10 15
4 30	10 42	10 42	10 45	10 47	10 53	10 59	11 5	11 11	11 19	11 23	11 29	11 30	11 32
5 0	11 53	11 53	11 56	11 59	12 6	12 12	12 19	12 25	12 34	12 39	12 45	12 47	12 49
5 30	13 4	13 4	13 8	13 11	13 18	13 25	13 33	13 40	13 49	13 54	14 2	14 4	14 6
6 0	14 15	14 15	14 20	14 23	14 31	14 38	14 47	14 54	15 5	15 10	15 18	15 21	15 23
6 30	15 26	15 26	15 31	15 35	15 43	15 41	16 1	16 9	16 20	16 26	16 35	16 37	16 40
7 0	16 38	16 38	16 43	16 47	16 56	17 5	17 15	17 23	17 36	17 42	17 51	17 54	17 56
7 30	17 49	17 49	17 55	17 59	18 9	18 18	18 28	18 38	18 51	18 58	19 8	19 11	19 13
8 0	19 0	19 1	19 6	19 11	19 21	19 31	19 42	19 52	20 6	20 14	20 24	20 27	20 30
8 30	20 11	20 11	20 18	20 23	20 34	20 44	20 56	21 7	21 22	21 30	21 41	21 44	21 47
9 0	21 23	21 23	21 30	21 35	21 46	21 57	22 10	22 21	22 37	22 45	22 57	23 1	23 4
9 30	22 34	22 34	22 41	22 47	22 59	23 10	23 24	23 36	23 52	24 1	24 14	24 18	24 21
10 0	23 45	23 45	23 53	23 59	24 11	24 24	24 38	24 50	25 8	25 17	25 30	25 34	25 38
10 30	24 56	24 56	25 5	25 11	25 24	25 37	25 52	26 5	26 23	26 33	26 47	26 51	26 55
11 0	26 8	26 8	26 16	26 22	26 31	26 50	27 6	27 19	27 39	27 49	28 3	28 8	28 12
11 30	27 19	27 20	27 28	27 34	27 49	28 3	28 20	28 48	28 54	29 5	29 20	29 24	29 29
12 0	28 30	28 31	28 39	28 46	29 2	29 16	29 33	30 3	30 9	30 21	30 36	30 41	30 45
12 30	29 41	29 42	29 51	29 58	30 14	30 29	30 47	31 17	31 25	31 36	31 53	31 58	32 2
13 0	30 53	30 53	31 3	31 10	31 27	31 43	32 1	32 32	32 40	32 52	33 9	33 15	33 19
13 30	32 4	32 5	32 14	32 22	32 39	32 56	33 15	33 46	33 56	34 8	34 26	34 31	34 36
14 0	33 15	33 16	33 26	33 34	33 52	34 9	34 29	34 59	35 11	35 24	35 42	35 48	35 53

Tabula Veri motus Lune In horis & minutis.

[illegible]

Tabula Distinctionis diuisionis visibilia vera Ad Clima Sextū.

[illegible][illegible]

Tabula Distatæ punctionis visibil'a vera Ad Clima Sextū.

[illegible][illegible]

Tabula Distatæ punctionis visibilæ vera Ad Clima Sextu.

																0	1	2	3	4	5	6
																Argumenti Lune Signa.						
																12	11	10	9	8	7	
Distantia solutio nis veracitudo.	Distantia		Distantia		Distantia		Distantia		Distantia		Distantia		Distantia		Distantia							
	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo	Tempo	Latitudo						
mp	B m	m	B m	m	B m	m	B m	m	B m	m	B m	m	B m	m	B m	m						
7 28																						
7 0	1 26	32	1 27	33	1 26	34	1 25	36	1 24	38	1 23	39	1 22	40								
6 0	1 33	30	1 34	30	1 33	31	1 32	33	1 30	35	1 29	36	1 28	36								
5 0	1 35	27	1 36	27	1 35	28	1 34	30	1 32	31	1 31	32	1 30	32								
4 0	1 32	24	1 33	24	1 32	25	1 30	26	1 28	27	1 27	28	1 26	28								
3 0	1 26	21	1 28	21	1 27	22	1 26	23	1 24	24	1 23	25	1 22	25								
2 0	1 12	19	1 12	19	1 11	20	1 10	21	1 8	22	1 7	23	1 6	24								
1 0	0 46	18	0 46	18	0 45	19	0 44	20	0 43	21	1 42	22	0 41	22								
0 0	0 17	21	0 17	21	0 16	22	0 16	22	0 16	23	1 15	24	0 15	24								
0 30	0 0	22	0 0	22	0 0	23	0 0	24	0 0	25	0 0	26	0 0	26								
Non accedimus gradus ab ascendente.																						
0 30	0 0	22	0 0	22	0 0	23	0 0	24	0 0	25	0 0	26	0 0	26								
1 0	0 13	24	0 13	24	0 13	25	0 13	26	0 13	27	0 12	28	0 12	29								
2 0	0 39	29	0 39	29	0 39	30	0 38	31	0 37	31	0 36	32	0 36	34								
3 0	0 54	34	0 54	35	0 54	36	0 53	37	0 52	38	0 51	39	0 51	40								
4 0	0 59	37	0 59	38	0 59	39	0 58	41	0 57	42	0 56	43	0 56	44								
5 0	1 1	40	1 2	41	1 1	42	1 1	44	1 0	46	0 59	47	0 59	48								
6 0	0 57	44	0 58	45	0 57	46	0 57	48	0 56	50	0 55	51	0 55	52								
7 0	0 50	47	0 50	48	0 50	49	0 50	51	0 49	51	0 49	54	0 48	55								
7 48																						

Tabula Distantie punctionis visibilis vera ad Clima Sexti.

I II III IV V VI

0 1 2 3 4 5

Argumenti Lune Signa.

6

12 11 10 9 8 7

Distantis punctionis vera meridie.	Distancias		Distancias		Distancias		Distancias		Distancias		Distancias		Distancias		Distancias	
	Tempo		Tempo		Tempo		Tempo		Tempo		Tempo		Tempo		Tempo	
	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi
5 0	1 30	17	1 30	17	1 49	18	1 48	19	1 46	20	1 44	21	1 42	21		
4 0	1 45	18	1 45	18	1 45	19	1 44	20	1 42	21	1 40	22	1 39	22		
3 0	1 48	19	1 48	19	1 47	20	1 46	21	1 44	22	1 42	23	1 40	23		
2 0	1 32	21	1 32	21	1 31	22	1 30	23	1 28	24	1 27	25	1 26	26		
1 0	1 13	25	1 13	25	1 13	26	1 12	27	1 10	28	1 8	29	1 6	30		
Meridies	0 45	30	0 45	30	0 45	31	0 45	31	0 43	34	0 42	35	0 41	36		
1 0	0 20	35	0 20	36	0 20	37	0 19	39	0 19	40	0 18	41	0 18	42		
1 46	0 0	39	0 0	40	0 0	40	0 0	42	0 0	44	0 0	46	0 0	47		
Monagesimus gradus ab ascendente.																
1 46	0 0	39	0 0	40	0 0	40	0 0	42	0 0	44	0 0	46	0 0	47		
2 0	0 6	40	0 6	41	0 6	42	0 6	44	0 6	46	0 5	47	0 5	48		
3 0	0 24	44	0 24	45	0 24	46	0 24	48	0 23	50	0 23	52	0 22	53		
4 0	0 36	46	0 36	47	0 36	48	0 35	51	0 35	52	0 34	54	0 34	55		
5 0	0 43	47	0 43	48	0 43	49	0 42	51	0 42	52	0 41	55	0 40	56		
6 0																

S C D R P Y U S

Distantis punctionis vera meridie.	Distancias		Distancias		Distancias		Distancias		Distancias		Distancias		Distancias		Distancias	
	Tempo		Tempo		Tempo		Tempo		Tempo		Tempo		Tempo		Tempo	
	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi	Lat	mi
5 12	1 42	22	1 42	22	1 42	23	1 42	24	1 39	25	1 37	26	1 35	26		
4 0	1 47	22	1 48	22	1 47	23	1 46	24	1 43	25	1 40	26	1 38	26		
3 0	1 43	23	1 44	23	1 43	24	1 42	25	1 40	26	1 38	27	1 37	28		
2 0	1 31	27	1 32	27	1 31	28	1 29	29	1 27	31	1 26	32	1 25	32		
1 0	1 16	30	1 16	31	1 15	32	1 14	34	1 12	35	1 11	36	1 10	37		
Meridies	0 50	36	0 51	37	0 50	38	0 49	40	0 48	41	0 47	42	0 46	43		
1 0	0 20	42	0 20	43	0 20	44	0 20	46	0 18	48	0 16	50	0 15	51		
1 45	0 0	45	0 0	46	0 0	47	0 0	49	0 0	51	0 0	51	0 0	53		
Monagesimus gradus ab ascendente.																
1 45	0 0	45	0 0	46	0 0	47	0 0	49	0 0	51	0 0	51	0 0	53		
2 0	0 6	45	0 6	46	0 6	47	0 6	49	0 6	51	0 5	51	0 5	54		
3 0	0 26	47	0 26	48	0 25	50	0 25	52	0 23	54	0 21	56	0 20	57		
4 0	0 39	47	0 39	48	0 38	50	0 38	52	0 36	54	0 34	56	0 32	57		
5 0	0 45	47	0 45	48	0 45	50	0 43	52	0 41	54	0 39	55	0 38	56		
5 12																

Tabula Distantie punctionis visibilis vera Ad Clima Sextū.

A D U A B Y U S

0 1 2 3 4 5

Argumenti Lune Signa.

6

12 11 10 9 8 7

Distancia punctionis verametriculic.	A		D		U		A		B		Y		U		S	
	0		1		2		3		4		5		6		7	
	12		11		10		9		8		7		6		5	
B m	Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o	
	Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o	
4 32	5 m		5 m		5 m		5 m		5 m		5 m		5 m		5 m	
4 0	0 57	45	0 56	46	0 56	47	0 55	49	0 53	51	0 51	53	0 50	54	0 50	54
3 0	0 46	46	0 45	47	0 45	49	0 44	41	0 43	53	0 42	54	0 42	55	0 42	55
2 0	0 30	47	0 29	48	0 28	50	0 27	52	0 26	54	0 25	55	0 25	56	0 25	56
1 5	0 0	46	0 0	47	0 0	49	0 0	51	0 0	53	0 0	54	0 0	55	0 0	55
Nonagesimus gradus ab ascendente.																
1 5	0 0	46	0 0	47	0 0	49	0 0	51	0 0	53	0 0	54	0 0	55	0 0	55
1 0	0 3	46	0 3	47	0 3	49	0 3	51	0 3	53	0 3	54	0 3	55	0 3	55
Uderides	0 32	43	0 32	44	0 31	46	0 30	48	0 30	50	0 29	51	0 29	52	0 29	52
1 0	1 0	39	1 0	40	0 59	41	0 58	43	0 57	45	0 56	46	0 55	47	0 55	47
2 0	1 21	35	1 21	36	1 21	37	1 20	39	1 18	40	1 16	41	1 15	42	1 15	42
3 0	1 33	30	1 33	31	1 32	32	1 31	33	1 29	34	1 27	35	1 26	36	1 26	36
4 0	1 37	26	1 38	27	1 37	28	1 35	29	1 33	31	1 31	32	1 30	32	1 30	32
4 32																

D Y S C E S

Distancia punctionis verametriculic.	D		Y		S		C		E		S	
	0		1		2		3		4		5	
	12		11		10		9		8		7	
B m	Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o		Aep ^o	
	Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o		Lat ^o	
5 12	5 m		5 m		5 m		5 m		5 m		5 m	
5 0	0 45	47	0 45	48	0 45	50	0 43	52	0 41	54	0 39	56
4 0	0 39	47	0 39	48	0 38	50	0 38	52	0 36	54	0 34	56
3 0	0 26	47	0 26	48	0 25	50	0 25	52	0 23	54	0 21	56
2 0	0 6	45	0 6	46	0 6	47	0 6	49	0 6	51	0 5	53
1 45	0 0	45	0 0	46	0 0	47	0 0	49	0 0	51	0 0	52
Nonagesimus gradus ab ascendente.												
1 45	0 0	45	0 0	46	0 0	47	0 0	49	0 0	51	0 0	52
1 0	0 20	42	0 20	43	0 20	44	0 20	46	0 18	48	0 16	50
Uderides	0 50	36	0 51	37	0 50	38	0 49	40	0 48	41	0 47	42
1 0	1 16	30	1 16	31	1 15	32	1 14	34	1 12	35	1 11	36
2 0	1 31	27	1 32	27	1 31	28	1 29	29	1 27	31	1 26	32
3 0	1 43	23	1 44	23	1 43	24	1 42	25	1 40	26	1 38	27
4 0	1 47	22	1 48	22	1 47	23	1 46	24	1 43	25	1 40	26
5 0	1 42	22	1 42	23	1 42	23	1 41	24	1 39	25	1 37	26
5 12												

Tabula distantie punctionis visibilis vera Ad clima septimū.

		C		A		N		C		E		B	
		1		2		3		4		5		6	
		Argumenti Lune Signa.											
		11		10		9		8		7			
Anel meridie	8 o	B m		B m		B m		B m		B m		B m	
	7 o	1 5		42 32		1 6		43 33		1 6		44 34	
	6 o	1 12		39 36		1 13		40 36		1 12		41 37	
	5 o	1 16		36 37		1 17		37 38		1 16		38 39	
Anel meridie	4 o	1 12		32 36		1 13		33 36		1 12		34 37	
	3 o	1 5		28 32		0 51		29 32		1 4		30 34	
	2 o	0 50		25 25		0 51		26 25		0 49		27 27	
	1 o	0 28		23 14		0 28		23 14		0 28		25 15	
Anel meridie	0 o	0 21		0 21		0 21		0 21		0 24		0 24	
	8 o	0 28		23 14		0 28		23 14		0 27		26 15	
	7 o	0 50		25 25		0 51		26 25		0 49		27 27	
	6 o	1 5		28 32		1 5		29 32		1 4		30 34	
Anel meridie	5 o	1 12		32 36		1 13		33 36		1 12		34 37	
	4 o	1 16		36 37		1 17		37 38		1 16		38 39	
	3 o	1 12		32 36		1 13		33 36		1 12		34 37	
	2 o	1 5		28 32		0 51		29 32		1 4		30 34	
Anel meridie	1 o	0 28		23 14		0 28		23 14		0 28		25 15	
	0 o	0 21		0 21		0 21		0 21		0 24		0 24	
	8 o	0 28		23 14		0 28		23 14		0 27		26 15	
	7 o	0 50		25 25		0 51		26 25		0 49		27 27	
Anel meridie	6 o	1 5		28 32		1 5		29 32		1 4		30 34	
	5 o	1 12		32 36		1 13		33 36		1 12		34 37	
	4 o	1 16		36 37		1 17		37 38		1 16		38 39	
	3 o	1 12		32 36		1 13		33 36		1 12		34 37	
Anel meridie	2 o	1 5		28 32		0 51		29 32		1 4		30 34	
	1 o	0 28		23 14		0 28		23 14		0 28		25 15	
	0 o	0 21		0 21		0 21		0 21		0 24		0 24	
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Tabula distantie punctionis visibilis vera Eld clima septimū.

CEI ORY COX NOS

1 2 3 4 5 6
Argumenti Lune Signa.
11 10 9 8 7

Distancia punctionis vere meridie.	1			2			3			4			5			6		
	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati
4 0	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m
3 0	1 9	42 34	0 51	1 9	43 34	0 50	1 7	46 16	0 49	1 5	48 37	0 47	1 4	49 39	0 47	1 3	50 39	0 46
2 0	0 51	45 25	0 51	0 51	46 25	0 50	0 49	50 27	0 48	0 48	51 28	0 47	0 47	52 28	0 46	0 46	53 29	0 45
1 0	0 28	47 14	0 28	0 28	48 14	0 28	0 28	52 15	0 27	0 27	54 16	0 26	0 26	56 16	0 25	0 25	58 16	0 24
0 0	0 0	49 0	0 0	0 0	50 0	0 0	0 0	54 0	0 0	0 0	56 0	0 0	0 0	58 0	0 0	0 0	60 0	0 0
Nonagesimus gradus ab Ascendente.																		
meridies	0 0	49 0	0 0	0 0	50 0	0 0	0 0	54 0	0 0	0 0	56 0	0 0	0 0	58 0	0 0	0 0	60 0	0 0
1 0	0 28	47 14	0 28	0 28	48 14	0 28	0 28	52 15	0 27	0 27	54 16	0 26	0 26	56 16	0 25	0 25	58 16	0 24
2 0	0 51	45 25	0 51	0 51	46 25	0 50	0 49	50 27	0 48	0 48	51 28	0 47	0 47	52 28	0 46	0 46	53 29	0 45
3 0	1 9	42 34	1 9	43 34	1 8	44 35	1 7	46 16	1 5	48 37	1 4	49 39	1 3	50 39	1 2	51 40	52 41	53 42
4 0																		

CEI ORY NOS

Distancia punctionis vere meridie.	1			2			3			4			5			6		
	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati	Tempo	lune	lati
4 0	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m	5 m
3 0	0 50	45 25	0 50	0 50	46 25	0 49	0 48	50 26	0 47	0 47	52 27	0 46	0 46	53 28	0 45	0 45	54 29	0 44
2 0	0 40	47 20	0 41	0 41	48 20	0 40	0 39	52 21	0 38	0 38	54 22	0 37	0 37	56 22	0 36	0 36	58 23	0 35
1 0	0 19	49 9	0 19	0 19	50 9	0 18	0 18	54 10	0 17	0 17	56 11	0 16	0 16	58 12	0 15	0 15	60 13	0 14
0 0	0 0	49 0	0 0	0 0	50 0	0 0	0 0	54 0	0 0	0 0	56 0	0 0	0 0	58 0	0 0	0 0	60 0	0 0
Nonagesimus gradus ab Ascendente.																		
meridies	0 33	45 16	0 33	0 33	46 16	0 32	0 32	50 17	0 31	0 31	52 18	0 30	0 30	54 19	0 29	0 29	56 20	0 28
1 0	0 52	41 28	0 53	0 53	42 29	0 52	0 51	44 30	0 50	0 50	46 31	0 49	0 49	48 32	0 48	0 48	50 33	0 47
2 0	1 18	37 39	1 19	38 39	1 18	39 40	1 17	40 41	1 16	1 16	42 42	1 15	1 15	44 43	1 14	1 14	46 44	1 13
3 0	1 26	33 43	1 26	34 43	1 25	35 44	1 24	36 45	1 23	1 23	38 46	1 22	1 22	40 47	1 21	1 21	42 48	1 20
4 0																		
4 20																		

Tabula distantie punctionis visibilis vera Ad clima septimū.

		A		B		C		D		E		F		G		H		I		K		L		M		N		O		P		Q		R		S		T		U		V		W		X		Y		Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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Tabula distantie punctionis visibilis vera ad clima septimū.

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		1		2		3		4		5		6	
		Argumenti Lune Signa.											
		11		10		9		8		7			
Distancia punctio- nis veramentis	B m	motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas	
		lat		lat		lat		lat		lat		lat	
		lune	lat	lune	lat	lune	lat	lune	lat	lune	lat	lune	lat
7 40	6 54	0 35	49 17	0 35	50 17	0 35	51 18	0 34	52 19	0 34	53 20	0 33	54 21
6 0	5 0	0 38	48 19	0 38	49 19	0 38	50 20	0 37	51 20	0 37	52 21	0 36	53 22
4 0	3 0	0 37	44 18	0 37	45 18	0 37	46 19	0 36	47 20	0 36	48 21	0 35	49 22
2 0	1 23	0 14	37 7	0 14	38 7	0 14	39 7	0 14	40 8	0 13	41 8	0 13	42 9

Nonagessimus gradus ab ascendente.

Distancia punctio- nis veramentis	B m	motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas	
		lat		lat		lat		lat		lat		lat	
		lune	lat	lune	lat	lune	lat	lune	lat	lune	lat	lune	lat
7 40	6 54	0 35	49 17	0 35	50 17	0 35	51 18	0 34	52 19	0 34	53 20	0 33	54 21
6 0	5 0	0 38	48 19	0 38	49 19	0 38	50 20	0 37	51 20	0 37	52 21	0 36	53 22
4 0	3 0	0 37	44 18	0 37	45 18	0 37	46 19	0 36	47 20	0 36	48 21	0 35	49 22
2 0	1 23	0 14	37 7	0 14	38 7	0 14	39 7	0 14	40 8	0 13	41 8	0 13	42 9

II

		G		E		B		I		N		I	
		1		2		3		4		5		6	
		Argumenti Lune Signa.											
		11		10		9		8		7			
Distancia punctio- nis veramentis	B m	motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas	
		lat		lat		lat		lat		lat		lat	
		lune	lat	lune	lat	lune	lat	lune	lat	lune	lat	lune	lat
7 40	6 54	0 35	49 17	0 35	50 17	0 35	51 18	0 34	52 19	0 34	53 20	0 33	54 21
6 0	5 0	0 38	48 19	0 38	49 19	0 38	50 20	0 37	51 20	0 37	52 21	0 36	53 22
4 0	3 0	0 37	44 18	0 37	45 18	0 37	46 19	0 36	47 20	0 36	48 21	0 35	49 22
2 0	1 23	0 14	37 7	0 14	38 7	0 14	39 7	0 14	40 8	0 13	41 8	0 13	42 9

Nonagessimus gradus ab ascendente.

Distancia punctio- nis veramentis	B m	motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas		motus Ductifas	
		lat		lat		lat		lat		lat		lat	
		lune	lat	lune	lat	lune	lat	lune	lat	lune	lat	lune	lat
7 40	6 54	0 35	49 17	0 35	50 17	0 35	51 18	0 34	52 19	0 34	53 20	0 33	54 21
6 0	5 0	0 38	48 19	0 38	49 19	0 38	50 20	0 37	51 20	0 37	52 21	0 36	53 22
4 0	3 0	0 37	44 18	0 37	45 18	0 37	46 19	0 36	47 20	0 36	48 21	0 35	49 22
2 0	1 23	0 14	37 7	0 14	38 7	0 14	39 7	0 14	40 8	0 13	41 8	0 13	42 9

Tabula Latitudinis Lune In Eclipsibus.

Sig 0 Septē- trional. Sig 6 Adri- dional.	La- ti- tu- do	Sig 0 Septē- trional. Sig 6 Adri- dional.	La- ti- tu- do	Sig 0 Septē- trional. Sig 6 Adri- dional.	La- ti- tu- do
g m	g m fa m g	g m	g m fa m g	g m	g m fa m g
0 0	0 0 0 0 0 0	0 0	0 0 0 0 0 0	0 0	0 0 0 0 0 0
10 20	0 0 32 50 40	7 10 20	0 37 23 50 23 40	14 10 20	1 13 21 50 15 40
30 40	0 2 36 30 20	30 40	0 39 7 30 20	30 40	1 15 3 30 20
50 0	0 4 21 10 29	50 0	0 39 59 10 22	50 0	1 15 54 30 20
1 0	0 5 13 0 29	8 0	0 41 42 0 22	15 0	1 16 45 10 15
10 20	0 6 5 50 40	10 20	0 42 34 50 40	10 20	1 17 36 50 40
30 40	0 7 50 30 20	30 40	0 44 17 30 20	30 40	1 18 26 50 40
50 0	0 8 42 20 10	40 0	0 45 9 20 10	40 0	1 19 16 50 40
2 0	0 9 35 10 28	50 0	0 46 0 10 21	50 0	1 20 6 30 20
10 20	0 10 27 0 28	9 0	0 46 52 0 21	16 0	1 20 56 10 14
30 40	0 11 19 50 40	10 20	0 47 44 50 40	10 20	1 21 46 10 14
50 0	0 12 11 40 27	30 40	0 48 35 30 20	30 40	1 22 35 50 40
1 0	0 13 3 30 20	50 0	0 49 27 30 20	50 0	1 23 25 50 40
10 20	0 13 56 20 10	10 20	0 50 18 20 10	10 20	1 24 15 50 40
30 40	0 14 48 10 27	30 40	0 51 10 10 20	30 40	1 25 4 30 20
50 0	0 15 40 0 27	50 0	0 52 1 10 20	50 0	1 25 54 30 20
1 0	0 16 32 50 40	10 20	0 52 52 50 40	17 0	1 26 44 10 13
10 20	0 17 24 40 26	30 40	0 53 44 30 20	10 20	1 27 33 50 40
30 40	0 18 16 30 20	50 0	0 54 35 20 10	30 40	1 28 23 50 40
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10 20	0 25 15 10 25	10 20	0 60 34 20 10	10 20	1 35 0 30 20
30 40	0 26 7 0 25	30 40	1 1 25 10 18	30 40	1 36 40 10 11
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10 20	0 32 11 50 40	50 0	1 7 23 0 17	20 0	1 42 27 50 40
30 40	0 33 3 40 20	10 20	1 8 15 50 40	10 20	1 43 17 50 40
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1 0	0 47 0 0 23	10 20	1 22 0 0 16	10 20	1 58 0 10 9
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10 20	0 60 0 0 23	30 40	1 35 0 0 16	30 40	1 71 0 10 9
30 40	0 61 0 0 23	50 0	1 36 0 0 16	50 0	1 72 0 10 9
50 0	0 62 0 0 23	10 20	1 37 0 0 16	10 20	1 73 0 10 9
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50 0	0 66 0 0 23	30 40	1 41 0 0 16	30 40	1 77 0 10 9
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50 0	0 70 0 0 23	50 0	1 45 0 0 16	50 0	1 81 0 10 9
1 0	0 71 0 0 23	10 20	1 46 0 0 16	10 20	1 82 0 10 9
10 20	0 72 0 0 23	30 40	1 47 0 0 16	30 40	1 83 0 10 9
30 40	0 73 0 0 23	50 0	1 48 0 0 16	50 0	1 84 0 10 9
50 0	0 74 0 0 23	10 20	1 49 0 0 16	10 20	1 85 0 10 9
1 0	0 75 0 0 23	30 40	1 50 0 0 16	30 40	1 86 0 10 9
10 20	0 76 0 0 23	50 0	1 51 0 0 16	50 0	1 87 0 10 9
30 40	0 77 0 0 23	10 20	1 52 0 0 16	10 20	1 88 0 10 9
50 0	0 78 0 0 23	30 40	1 53 0 0 16	30 40	1 89 0 10 9
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50 0	0 82 0 0 23	50 0	1 57 0 0 16	50 0	1 93 0 10 9
1 0	0 83 0 0 23	10 20	1 58 0 0 16	10 20	1 94 0 10 9
10 20	0 84 0 0 23	30 40	1 59 0 0 16	30 40	1 95 0 10 9
30 40	0 85 0 0 23	50 0	1 60 0 0 16	50 0	1 96 0 10 9
50 0	0 86 0 0 23	10 20	1 61 0 0 16	10 20	1 97 0 10 9
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30 40	0 89 0 0 23	10 20	1 64 0 0 16	10 20	1 100 0 10 9
50 0	0 90 0 0 23	30 40	1 65 0 0 16	30 40	1 101 0 10 9
1 0	0 91 0 0 23	50 0	1 66 0 0 16	50 0	1 102 0 10 9
10 20	0 92 0 0 23	10 20	1 67 0 0 16	10 20	1 103 0 10 9
30 40	0 93 0 0 23	30 40	1 68 0 0 16	30 40	1 104 0 10 9
50 0	0 94 0 0 23	50 0	1 69 0 0 16	50 0	1 105 0 10 9
1 0	0 95 0 0 23	10 20	1 70 0 0 16	10 20	1 106 0 10 9
10 20	0 96 0 0 23	30 40	1 71 0 0 16	30 40	1 107 0 10 9
30 40	0 97 0 0 23	50 0	1 72 0 0 16	50 0	1 108 0 10 9
50 0	0 98 0 0 23	10 20	1 73 0 0 16	10 20	1 109 0 10 9
1 0	0 99 0 0 23	30 40	1 74 0 0 16	30 40	1 110 0 10 9
10 20	0 100 0 0 23	50 0	1 75 0 0 16	50 0	1 111 0 10 9
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50 0	0 102 0 0 23	30 40	1 77 0 0 16	30 40	1 113 0 10 9
1 0	0 103 0 0 23	50 0	1 78 0 0 16	50 0	1 114 0 10 9
10 20	0 104 0 0 23	10 20	1 79 0 0 16	10 20	1 115 0 10 9
30 40	0 105 0 0 23	30 40	1 80 0 0 16	30 40	1 116 0 10 9
50 0	0 106 0 0 23	50 0	1 81 0 0 16	50 0	1 117 0 10 9
1 0	0 107 0 0 23	10 20	1 82 0 0 16	10 20	1 118 0 10 9
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30 40	0 121 0 0 23	50 0	1 96 0 0 16	50 0	1 132 0 10 9
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50 0	0 126 0 0 23	30 40	1 101 0 0 16	30 40	1 137 0 10 9
1 0	0 127 0 0 23	50 0	1 102 0 0 16	50 0	1 138 0 10 9
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30 40	0 133 0 0 23	50 0	1 108 0 0 16	50 0	1 144 0 10 9
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1 0	0 135 0 0 23	30 40	1 110 0 0 16	30 40	1 146 0 10 9
10 20	0 136 0 0 23	50 0	1 111 0 0 16	50 0	1 147 0 10 9
30 40	0 137 0 0 23	10 20	1 112 0 0 16	10 20	1 148 0 10 9
50 0	0 138 0 0 23	30 40	1 113 0 0 16	30 40	1 149 0 10 9
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Tabula Eclypsis Sol existet in Auge Ecētrici.

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Tabula Eclypsis Sol existet in Longitudine media Eccetrici.

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Tabula Eclypsis Sol existētis in opposito Alogis ecētrici.

Tertia.

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Tabula Eclypsis Lune Sole existente

Prima.

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0 **Argumenti Lune Signa.**
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Latitudo lune visæ.	Idu cta eclyp- pti- ca.	Æp ^o calus	Altera media.	Altera 2.unc.	Idu cta eclyp- pti- ca.	Æp ^o calus	Altera media.	Altera 2.unc.	Idu cta eclyp- pti- ca.	Æp ^o calus	Altera media.	Altera 2.unc.	Idu cta eclyp- pti- ca.	Æp ^o calus	Altera media.	Altera 2.unc.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
0	21 36	1 4	51	57	21 36	1 4	51	57	21 36	1 3	51	59	21 36	1 3	51	62
1	21 11	1 4	51	57	21 11	1 4	51	57	21 12	1 3	51	59	21 14	1 3	51	62
2	20 46	1 4	51	57	20 47	1 4	51	57	20 48	1 3	51	59	20 51	1 3	51	62
3	20 22	1 4	51	57	20 22	1 4	51	57	20 25	1 3	51	59	20 29	1 3	51	62
4	19 57	1 4	50	56	19 57	1 4	50	57	20 1	1 4	50	59	20 6	1 4	50	62
5	19 32	1 4	50	56	19 33	1 4	50	57	19 37	1 4	50	59	19 44	1 4	50	62
6	19 7	1 5	49	56	19 8	1 4	50	57	19 14	1 4	49	58	19 21	1 4	49	61
7	18 42	1 5	49	56	18 44	1 5	49	57	18 50	1 4	49	58	18 59	1 5	49	61
8	18 17	1 5	48	56	18 19	1 5	48	56	18 26	1 5	48	58	18 36	1 5	48	61
9	17 53	1 6	47	56	17 55	1 6	47	56	18 3	1 6	47	58	18 14	1 6	47	61
10	17 28	1 7	46	56	17 30	1 7	46	56	17 39	1 7	46	58	17 51	1 6	47	61
11	17 3	1 7	45	55	17 6	1 7	45	56	17 15	1 8	44	58	17 29	1 7	46	61
12	16 38	1 8	44	55	16 41	1 8	44	56	16 52	1 8	44	58	17 6	1 7	45	61
13	16 13	1 9	42	55	16 17	1 9	42	55	16 28	1 8	43	57	16 44	1 8	44	61
14	15 48	1 10	41	55	15 52	1 10	41	55	16 4	1 9	42	57	16 21	1 9	43	61
15	15 24	1 11	39	54	15 28	1 11	39	55	15 41	1 10	40	57	15 59	1 10	42	61
16	14 59	1 12	37	54	15 3	1 13	37	55	15 17	1 11	38	56	15 36	1 11	40	60
17	14 34	1 13	35	53	14 39	1 14	35	54	14 53	1 13	36	56	15 14	1 12	38	60
18	14 9	1 15	32	53	14 14	1 16	33	54	14 30	1 14	34	56	14 51	1 14	36	60
19	13 44	1 18	29	53	13 50	1 18	30	54	14 6	1 16	32	56	14 29	1 15	34	59
20	13 19	1 20	26	52	13 25	1 20	27	53	13 42	1 18	29	55	14 6	1 16	32	59
21	12 55	1 24	21	52	13 1	1 23	23	53	13 18	1 20	26	55	13 44	1 18	29	58
22	12 30	1 28	16	51	12 36	1 27	18	52	12 55	1 23	22	54	13 21	1 20	26	58
23	12 5	1 36	7	51	12 12	1 33	11	52	12 31	1 27	17	54	12 58	1 22	23	57
24	11 40	1 42	0	50	11 47	1 43	0	51	12 7	1 35	8	53	12 36	1 26	18	57
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26	10 51	1 39	0	49	10 58	1 40	0	50	11 20	1 41	0	52	11 51	1 42	0	56
27	10 26	1 38	0	48	10 34	1 39	0	49	10 56	1 40	0	52	11 28	1 41	0	55
28	10 1	1 37	0	48	10 9	1 38	0	49	10 33	1 39	0	51	11 6	1 40	0	54
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30	9 11	1 34	0	46	9 20	1 35	0	47	9 45	1 36	0	50	10 21	1 38	0	53
31	8 46	1 32	0	45	8 56	1 34	0	47	9 22	1 35	0	49	9 58	1 37	0	53
32	8 22	1 30	0	44	8 31	1 32	0	46	8 58	1 34	0	49	9 36	1 35	0	52
33	7 57	1 28	0	43	8 7	1 30	0	45	8 34	1 32	0	48	9 13	1 34	0	51

In Auge Eccentrici sui.

Prima.

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0 Argumenti Lune Signa.
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Latitudo lune visae.	Quarta ecliptica.	Tempus casus.	Abora media.	Abora Luna.	Quarta ecliptica.	Tempus casus.	Abora media.	Abora lune.	Quarta ecliptica.	Tempus casus.	Abora media.	Abora lune.	Quarta ecliptica.	Tempus casus.	Abora media.	Abora lune.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
34	7 32	1 27	0	43	7 42	1 23	0	44	8 11	1 30	0	45	8 51	1 32	0	50
35	7 7	1 25	0	42	7 18	1 26	0	43	7 47	1 28	0	46	8 28	1 31	0	50
36	6 42	1 23	0	41	6 53	1 24	0	42	7 23	1 26	0	45	8 6	1 30	0	49
37	6 17	1 21	0	40	6 29	1 22	0	41	7 0	1 24	0	43	7 43	1 28	0	48
38	5 53	1 18	0	39	6 4	1 20	0	40	6 36	1 22	0	42	7 21	1 26	0	47
39	5 28	1 16	0	38	5 40	1 18	0	39	6 12	1 20	0	41	6 58	1 24	0	46
40	5 3	1 14	0	37	5 15	1 15	0	38	5 49	1 18	0	40	6 36	1 22	0	45
41	4 38	1 11	0	35	4 51	1 13	0	36	5 25	1 16	0	39	6 13	1 20	0	44
42	4 13	1 8	0	34	4 26	1 10	0	35	5 1	1 13	0	38	5 51	1 18	0	42
43	3 48	1 5	0	32	4 2	1 7	0	33	4 37	1 11	0	37	5 28	1 16	0	41
44	3 24	1 2	0	31	3 37	1 3	0	31	4 14	1 8	0	35	5 6	1 14	0	40
45	2 59	0 58	0	29	3 13	1 0	0	30	3 50	1 5	0	34	4 43	1 11	0	39
46	2 34	0 54	0	27	2 48	0 57	0	28	3 26	1 2	0	32	4 20	1 8	0	37
47	2 9	0 49	0	24	2 24	0 52	0	26	3 3	0 59	0	31	3 58	1 5	0	35
48	1 41	0 45	0	22	1 59	0 48	0	24	2 39	0 55	0	28	3 36	1 2	0	34
49	1 19	0 40	0	20	1 35	0 43	0	21	2 15	0 51	0	26	3 12	0 59	0	32
50	0 55	0 33	0	16	1 10	0 38	0	19	1 52	0 47	0	24	2 50	0 56	0	30
51	0 30	0 24	0	12	0 46	0 33	0	16	1 28	0 42	0	22	2 28	0 52	0	28
52	0 5	0 10	0	5	0 21	0 21	0	10	1 4	0 36	0	19	2 5	0 48	0	26
53	0 0	0 0	0	0	0 0	0 0	0	0	0 41	0 28	0	14	1 43	0 44	0	24
54	0 0	0 0	0	0	0 0	0 0	0	0	0 17	0 19	0	10	1 20	0 39	0	21
55	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 58	0 33	0	18
56	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 35	0 26	0	14
57	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 12	0 16	0	9
58	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
59	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
60	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
61	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
62	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
63	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
64	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
65	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
66	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0

Tabula Eclipsis Lune Sole existente

Prima.

Argumenti Lune Signa.

[illegible]

In Auge Eccentrici fut.

Prima.

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Argumenti Lune Signa. 6
8 7

Latitudo lune vita.	Qu cta ecly- pti- ca.	Tempo casus	Altera media.	Altera lune.	Qu cta ecly- pti- ca.	Tempo casus	Altera media.	Altera lune.	Qu cta ecly- pti- ca.	Tempo casus	Altera media.	Altera lune.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
34	9 33	1 35	0	55	10 6	1 36	0	58	10 18	1 36	0	59
35	9 12	1 33	0	54	9 46	1 35	0	57	9 58	1 35	0	59
36	8 51	1 32	0	54	9 25	1 34	0	57	9 38	1 34	0	58
37	8 30	1 31	0	52	9 5	1 33	0	56	9 18	1 33	0	58
38	8 8	1 30	0	52	8 45	1 31	0	55	8 58	1 32	0	57
39	7 47	1 28	0	51	8 24	1 30	0	54	8 38	1 31	0	56
40	7 26	1 26	0	50	8 4	1 28	0	54	8 18	1 29	0	55
41	7 4	1 25	0	49	7 44	1 27	0	53	7 59	1 28	0	54
42	6 43	1 23	0	48	7 24	1 26	0	52	7 39	1 27	0	53
43	6 22	1 21	0	47	7 3	1 24	0	51	7 19	1 26	0	52
44	6 1	1 19	0	45	6 43	1 22	0	49	6 59	1 24	0	51
45	5 39	1 17	0	44	6 23	1 20	0	48	6 39	1 22	0	50
46	5 18	1 15	0	43	6 2	1 18	0	47	6 19	1 20	0	49
47	4 57	1 13	0	42	5 42	1 16	0	46	5 59	1 18	0	48
48	4 36	1 11	0	41	5 22	1 14	0	45	5 39	1 16	0	47
49	4 14	1 8	0	39	5 1	1 12	0	43	5 19	1 14	0	45
50	3 53	1 5	0	37	4 41	1 10	0	42	4 59	1 12	0	44
51	3 32	1 2	0	36	4 21	1 8	0	41	4 39	1 10	0	43
52	3 11	0 59	0	34	4 1	1 6	0	40	4 19	1 8	0	42
53	2 49	0 56	0	32	3 40	1 3	0	38	3 59	1 6	0	41
54	2 28	0 53	0	30	3 20	1 0	0	36	3 40	1 3	0	39
55	2 7	0 49	0	28	3 0	0 57	0	34	3 20	1 0	0	37
56	1 46	0 45	0	26	2 39	0 54	0	32	3 0	0 57	0	35
57	1 24	0 40	0	23	2 19	0 50	0	30	2 40	0 54	0	33
58	1 3	0 35	0	20	1 59	0 46	0	28	2 20	0 51	0	31
59	0 42	0 29	0	17	1 38	0 42	0	25	2 0	0 48	0	29
60	0 21	0 20	0	12	1 18	0 38	0	23	1 40	0 44	0	27
61	0 0	0 0	0	0	0 58	0 33	0	20	1 20	0 39	0	24
62	0 0	0 0	0	0	0 38	0 27	0	16	1 0	0 34	0	21
63	0 0	0 0	0	0	0 17	0 18	0	11	0 40	0 28	0	17
64	0 0	0 0	0	0	0 0	0 0	0	0	0 20	0 20	0	12
65	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 3	0	2
66	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0

Tabula Eclipsis Lune Sole existente

Secunda.

1 2 3
0 Argumenti Lune Signa.
11 10 9

Zatudo lune vifa.	Dū cta eclp- p ri- ca.	Tempo calus	Alora media	Alora Luna	Dū cta eclp- p ri- ca.	Tempo calus	Alora media	Alora Luna	Dū cta eclp- p ri- ca.	Tempo calus	Alora media	Alora Luna	Dū cta eclp- p ri- ca.	Tempo calus	Alora media	Alora Luna
m	p m	h m	m	m	p m	h m	m	m	p m	h m	m	m	p m	h m	m	m
0	21 25	1 4	50	56	21 26	1 4	50	57	21 26	1 4	50	59	21 26	1 4	50	62
1	21 0	1 4	50	56	21 1	1 4	50	57	21 2	1 4	50	59	21 4	1 4	50	62
2	20 36	1 4	50	56	20 37	1 4	50	57	20 38	1 4	50	59	20 41	1 4	50	62
3	20 11	1 4	50	56	20 12	1 4	50	57	20 15	1 4	50	59	20 19	1 4	50	62
4	19 46	1 5	49	56	19 47	1 5	49	57	19 51	1 4	49	59	19 56	1 4	49	62
5	19 21	1 5	49	56	19 23	1 5	49	57	19 27	1 4	49	58	19 34	1 4	49	61
6	18 56	1 5	49	56	18 58	1 5	48	56	19 4	1 4	48	58	19 11	1 4	49	61
7	18 31	1 6	48	56	18 34	1 6	48	56	18 40	1 5	48	58	18 49	1 5	48	61
8	18 7	1 6	48	56	18 9	1 6	47	56	18 16	1 5	47	58	18 26	1 5	48	61
9	17 42	1 7	47	56	17 45	1 7	46	56	17 53	1 5	47	58	18 4	1 6	47	61
10	17 17	1 7	46	56	17 20	1 7	45	56	17 29	1 5	46	57	17 41	1 6	46	61
11	16 52	1 8	45	56	16 56	1 8	44	56	17 5	1 6	45	57	17 19	1 7	45	61
12	16 27	1 8	44	55	16 31	1 9	43	56	16 42	1 6	44	57	16 56	1 7	44	60
13	16 2	1 9	42	55	16 7	1 10	42	56	16 18	1 7	43	57	16 34	1 8	43	60
14	15 38	1 11	40	55	15 42	1 11	40	55	15 54	1 8	41	56	16 11	1 9	42	60
15	15 13	1 12	38	54	15 18	1 12	38	55	15 31	1 10	39	56	15 49	1 10	40	60
16	14 48	1 13	36	54	14 53	1 14	36	55	15 7	1 11	37	56	15 26	1 11	38	59
17	14 23	1 15	33	53	14 29	1 15	34	54	14 43	1 13	35	56	15 4	1 13	36	59
18	13 58	1 17	30	53	14 4	1 17	31	54	14 20	1 14	33	55	14 41	1 14	34	59
19	13 34	1 19	27	52	13 40	1 19	28	53	13 56	1 17	30	55	14 19	1 16	32	59
20	13 9	1 21	24	52	13 15	1 21	25	53	13 32	1 19	27	55	13 56	1 17	30	58
21	12 44	1 25	19	51	12 51	1 24	21	52	13 8	1 21	24	54	13 34	1 19	27	58
22	12 19	1 30	13	51	12 26	1 29	14	52	12 45	1 24	20	54	13 11	1 21	24	57
23	11 54	1 42	0	50	12 2	1 39	4	51	12 21	1 29	14	53	12 48	1 24	20	57
24	11 29	1 41	0	50	11 37	1 42	0	51	11 57	1 42	0	53	12 26	1 28	15	56
25	11 5	1 40	0	49	11 13	1 40	0	50	11 34	1 41	0	52	12 3	1 37	5	56
26	10 40	1 39	0	49	10 48	1 39	0	49	11 10	1 40	0	52	11 41	1 41	0	55
27	10 15	1 38	0	48	10 24	1 38	0	49	10 46	1 39	0	51	11 18	1 40	0	54
28	9 50	1 37	0	48	9 59	1 37	0	48	10 23	1 38	0	51	10 56	1 39	0	54
29	9 25	1 36	0	47	9 35	1 36	0	47	9 59	1 37	0	50	10 33	1 38	0	53
30	9 0	1 33	0	46	9 10	1 34	0	47	9 35	1 35	0	49	10 11	1 37	0	53
31	8 36	1 32	0	45	8 46	1 33	0	46	9 12	1 34	0	49	9 48	1 36	0	52
32	8 11	1 30	0	44	8 21	1 31	0	45	8 48	1 32	0	48	9 26	1 35	0	52

In Longitudine Abedia Eccentrici sui.

Secunda.

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0 Argumenti Lune Signa.
11 10 9

Latitudo lune vifa.	Quarta eclyp- tica.	Tempus caus.	Abdia media.	Abdia lun.	Quarta eclyp- tica.	Tempus caus.	Abdia media.	Abdia lun.	Quarta eclyp- tica.	Tempus caus.	Abdia media.	Abdia lun.	Quarta eclyp- tica.	Tempus caus.	Abdia media.	Abdia lun.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
33	7 46	1 28	0	43	7 57	1 29	0	44	8 24	1 31	0	47	9 3	1 34	0	51
34	7 21	1 26	0	42	7 32	1 27	0	43	8 1	1 29	0	46	8 41	1 32	0	50
35	6 56	1 24	0	41	7 8	1 25	0	42	7 37	1 27	0	45	8 18	1 30	0	49
36	6 31	1 22	0	40	6 43	1 23	0	41	7 13	1 25	0	44	7 56	1 29	0	48
37	6 7	1 20	0	39	6 19	1 21	0	40	6 50	1 23	0	43	7 33	1 27	0	48
38	5 42	1 18	0	38	5 54	1 19	0	39	6 26	1 21	0	42	7 11	1 25	0	46
39	5 17	1 16	0	37	5 30	1 17	0	38	6 2	1 19	0	41	6 48	1 23	0	45
40	4 52	1 13	0	36	5 5	1 14	0	37	5 39	1 17	0	40	6 26	1 21	0	44
41	4 27	1 10	0	35	4 41	1 11	0	35	5 15	1 15	0	39	6 3	1 19	0	43
42	4 2	1 7	0	34	4 16	1 8	0	34	4 51	1 13	0	38	5 41	1 17	0	42
43	3 38	1 4	0	33	3 52	1 5	0	32	4 27	1 10	0	36	5 18	1 15	0	41
44	3 13	1 0	0	30	3 27	1 2	0	31	4 4	1 7	0	35	4 56	1 13	0	40
45	2 48	0 56	0	28	3 3	0 59	0	29	3 40	1 4	0	33	4 33	1 10	0	38
46	2 23	0 52	0	26	2 38	0 55	0	27	3 16	1 1	0	32	4 10	1 7	0	36
47	1 58	0 47	0	23	2 14	0 50	0	25	2 53	0 57	0	29	3 48	1 4	0	35
48	1 34	0 43	0	21	1 49	0 45	0	22	2 29	0 53	0	27	3 26	1 1	0	33
49	1 9	0 37	0	18	1 25	0 40	0	20	2 5	0 49	0	25	3 2	0 58	0	32
50	0 44	0 30	0	15	1 0	0 34	0	17	1 42	0 44	0	23	2 40	0 55	0	30
51	0 19	0 20	0	10	0 36	0 27	0	13	1 18	0 39	0	20	2 18	0 51	0	28
52	0 0	0 0	0	0	0 11	0 15	0	7	0 54	0 33	0	17	1 55	0 47	0	26
53	0 0	0 0	0	0	0 0	0 0	0	0	0 31	0 25	0	13	1 33	0 43	0	23
54	0 0	0 0	0	0	0 0	0 0	0	0	0 7	0 12	0	6	1 10	0 38	0	21
55	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 48	0 31	0	17
56	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 25	0 22	0	12
57	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 2	0 7	0	4
58	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
59	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
60	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
61	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
62	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
63	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
64	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
65	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0

Tabula Eclypsis Lune Sole existente

Secunda.

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Argumenti Lune Signa. 6
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Latitudo lune visa.	Quarta eclyp- tica.	Tempus causae	Altera media.	Altera Luna.	Quarta eclyp- tica.	Tempus causae	Altera media.	Altera Luna.	Quarta eclyp- tica.	Tempus causae	Altera media.	Altera Luna.
m	p m	p m	m	m	p m	p m	m	m	p m	p m	m	m
0	21 27	1 3 50	65	21 27	1 3 50	68	21 27	1 3 50	69	21 27	1 3 50	69
1	21 6	1 3 50	65	21 7	1 3 50	68	21 7	1 3 50	69	21 7	1 3 50	69
2	20 45	1 3 50	65	20 47	1 3 50	68	20 47	1 3 50	69	20 27	1 3 49	69
3	20 23	1 3 50	65	20 26	1 3 49	68	20 26	1 3 49	69	20 27	1 3 49	69
4	20 2	1 4 49	65	20 6	1 3 49	68	20 7	1 3 49	69	20 7	1 3 49	69
5	19 41	1 4 49	65	19 46	1 3 49	68	19 47	1 3 49	69	19 47	1 3 49	69
6	19 20	1 4 48	65	19 25	1 3 49	67	19 28	1 3 49	69	19 28	1 3 49	69
7	18 58	1 4 48	65	19 5	1 4 48	67	19 8	1 4 48	69	19 8	1 4 48	69
8	18 37	1 5 47	64	18 45	1 4 48	67	18 48	1 4 48	68	18 48	1 4 48	68
9	18 16	1 5 47	64	18 24	1 4 47	67	18 28	1 4 47	68	18 28	1 4 47	68
10	17 55	1 5 46	64	18 4	1 5 46	67	18 8	1 4 47	68	18 8	1 4 47	68
11	17 33	1 6 45	64	17 44	1 5 46	67	17 48	1 5 46	68	17 48	1 5 46	68
12	17 12	1 7 44	64	17 24	1 6 45	66	17 28	1 5 45	68	17 28	1 5 45	68
13	16 51	1 7 43	63	17 3	1 6 44	66	17 8	1 6 44	67	17 8	1 6 44	67
14	16 30	1 8 42	63	16 43	1 7 43	66	16 48	1 6 43	67	16 48	1 6 43	67
15	16 8	1 8 41	63	16 23	1 7 42	66	16 28	1 7 42	67	16 28	1 7 42	67
16	15 47	1 9 40	63	16 2	1 8 41	66	16 8	1 8 41	67	16 8	1 8 41	67
17	15 26	1 10 39	63	15 42	1 9 40	65	15 48	1 8 40	66	15 48	1 8 40	66
18	15 4	1 11 37	62	15 22	1 10 38	65	15 28	1 9 39	66	15 28	1 9 39	66
19	14 43	1 12 35	62	15 1	1 11 36	65	15 8	1 10 37	66	15 8	1 10 37	66
20	14 22	1 14 33	62	14 41	1 12 34	64	14 48	1 12 35	66	14 48	1 12 35	66
21	14 1	1 16 30	61	14 21	1 14 32	64	14 29	1 13 33	65	14 29	1 13 33	65
22	13 39	1 19 27	61	14 1	1 15 30	63	14 9	1 15 31	65	14 9	1 15 31	65
23	13 18	1 21 24	61	13 40	1 17 28	63	13 49	1 16 29	65	13 49	1 16 29	65
24	12 57	1 23 21	60	13 20	1 19 25	63	13 29	1 19 26	65	13 29	1 19 26	65
25	12 36	1 26 17	60	13 0	1 21 22	62	13 9	1 21 23	64	13 9	1 21 23	64
26	12 14	1 31 11	59	12 39	1 25 18	62	12 49	1 24 20	64	12 49	1 24 20	64
27	11 53	1 41 0	58	12 19	1 29 13	62	12 29	1 27 16	63	12 29	1 27 16	63
28	11 32	1 40 0	58	11 59	1 41 0	61	12 9	1 33 9	63	12 9	1 33 9	63
29	11 11	1 39 0	57	11 38	1 40 0	60	11 49	1 41 0	62	11 49	1 41 0	62
30	10 49	1 38 0	57	11 18	1 39 0	60	11 29	1 40 0	62	11 29	1 40 0	62
31	10 28	1 37 0	56	10 58	1 38 0	59	11 9	1 39 0	61	11 9	1 39 0	61
32	10 7	1 36 0	56	10 38	1 37 0	59	10 49	1 38 0	61	10 49	1 38 0	61

Secunda.

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Tabula Eclipsis Lune Sole existente

Tertiana

1 2 3
0 Argumenti Lune Signa.
11 10 8 9

Latitudo lune vifa.	Puncta ecliptica.	Tempus calura.	Abora media.	Abora lune.	Puncta ecliptica.	Tempus calura.	Abora media.	Abora lune.	Puncta ecliptica.	Tempus calura.	Abora media.	Abora lune.	Puncta ecliptica.	Tempus calura.	Abora media.	Abora lune.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
0	21 13	1 5	49	56	21 13	1 4	49	56	21 14	1 4	49	58	21 15	1 4	49	61
1	20 48	1 5	49	56	20 48	1 4	49	56	20 50	1 4	49	58	20 52	1 4	49	61
2	20 23	1 5	49	56	20 23	1 4	49	56	20 26	1 4	49	58	20 30	1 4	49	61
3	19 59	1 5	49	56	19 59	1 4	49	56	20 33	1 4	49	58	20 38	1 4	49	61
4	19 34	1 5	48	56	19 34	1 5	48	56	19 39	1 5	48	58	19 45	1 5	48	61
5	19 9	1 5	48	56	19 10	1 5	48	56	19 15	1 5	48	58	19 23	1 5	48	61
6	18 44	1 6	47	56	18 45	1 5	48	56	18 52	1 5	47	58	19 00	1 5	47	61
7	18 19	1 6	47	56	18 21	1 6	47	56	18 28	1 6	47	58	18 38	1 5	47	61
8	17 54	1 6	46	55	17 56	1 6	46	56	18 4	1 6	46	58	18 15	1 6	46	61
9	17 30	1 7	45	55	17 32	1 7	45	56	17 41	1 7	45	58	17 53	1 6	46	61
10	17 5	1 7	44	55	17 7	1 7	44	55	17 17	1 7	44	57	17 30	1 6	45	60
11	16 40	1 8	43	55	16 43	1 8	43	55	16 53	1 8	43	57	17 8	1 7	44	60
12	16 15	1 9	42	55	16 18	1 8	42	55	16 30	1 8	42	57	16 45	1 7	43	60
13	15 50	1 10	41	55	15 54	1 9	41	55	16 16	1 9	41	57	16 23	1 8	42	60
14	15 25	1 11	39	54	15 29	1 10	39	54	15 42	1 10	40	57	16 00	1 9	41	60
15	15 1	1 12	37	54	15 5	1 12	37	54	15 19	1 11	38	56	15 48	1 10	39	59
16	14 36	1 14	35	54	14 40	1 13	35	54	14 55	1 12	36	56	15 15	1 11	37	59
17	14 11	1 16	32	53	14 16	1 15	32	53	14 31	1 14	34	56	14 53	1 13	35	59
18	13 46	1 18	29	53	13 51	1 17	29	53	14 8	1 15	32	55	14 30	1 14	33	58
19	13 21	1 20	26	53	13 27	1 19	26	52	13 44	1 17	29	55	14 8	1 16	31	58
20	12 56	1 23	22	52	13 2	1 22	22	52	13 20	1 19	26	54	13 45	1 18	28	58
21	12 31	1 28	16	52	12 38	1 25	18	51	12 56	1 22	22	54	13 23	1 20	25	57
22	12 7	1 36	7	51	12 13	1 31	11	51	12 33	1 26	17	53	13 04	1 22	22	57
23	11 42	1 42	0	50	11 49	1 41	0	50	12 9	1 31	9	53	12 37	1 25	18	56
24	11 17	1 41	0	50	11 24	1 40	0	50	11 45	1 41	0	52	12 15	1 31	11	56
25	10 52	1 39	0	49	11 0	1 39	0	49	11 22	1 40	0	52	11 52	1 41	0	55
26	10 28	1 38	0	48	10 35	1 38	0	49	10 58	1 39	0	51	11 30	1 40	0	54
27	10 3	1 37	0	48	10 11	1 37	0	48	10 34	1 38	0	51	11 7	1 39	0	54
28	9 38	1 35	0	47	9 46	1 36	0	48	10 11	1 37	0	50	10 45	1 38	0	53
29	9 13	1 34	0	46	9 22	1 35	0	47	9 47	1 36	0	50	10 22	1 37	0	53
30	8 48	1 32	0	45	8 57	1 33	0	46	9 23	1 34	0	49	10 00	1 36	0	52
31	8 23	1 31	0	45	8 33	1 32	0	46	9 0	1 33	0	48	9 37	1 35	0	52
32	7 59	1 29	0	44	8 8	1 30	0	45	8 36	1 32	0	48	9 15	1 34	0	51

In opposito augis Eccentrici sui.

Tertia.

1 2 3
0 Argumenti Lune Signa.
11 10 8 9

Latitudo lune vifa.	Di- cta ecly- pti- ca.	Tempo calus.	Altera media.	Altera Luna.	Di- cta ecly- pti- ca.	Tempo calus.	Altera media.	Altera Luna.	Di- cta ecly- pti- ca.	Tempo calus.	Altera media.	Altera Luna.	Di- cta ecly- pti- ca.	Tempo calus.	Altera media.	Altera Luna.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
33	7 34	1 27	0	43	7 44	1 28	0	44	8 12	1 30	0	47	8 52	1 33	0	51
34	7 9	1 25	0	42	7 19	1 26	0	43	7 49	1 28	0	46	8 30	1 31	0	50
35	6 44	1 23	0	41	6 55	1 24	0	42	7 25	1 26	0	45	8 7	1 29	0	49
36	6 19	1 21	0	40	6 30	1 22	0	41	7 1	1 24	0	43	7 45	1 28	0	48
37	5 54	1 19	0	39	6 6	1 20	0	40	6 48	1 22	0	42	7 22	1 26	0	47
38	5 30	1 17	0	38	5 41	1 18	0	39	6 14	1 20	0	41	7 0	1 24	0	46
39	5 5	1 14	0	36	5 17	1 15	0	38	5 50	1 18	0	40	6 37	1 22	0	45
40	4 40	1 11	0	35	4 52	1 12	0	36	5 27	1 16	0	39	6 15	1 20	0	44
41	4 15	1 8	0	34	4 28	1 9	0	34	5 3	1 13	0	38	5 52	1 18	0	42
42	3 50	1 5	0	32	4 3	1 6	0	33	4 39	1 10	0	36	5 30	1 16	0	41
43	3 25	1 2	0	31	3 39	1 3	0	31	4 15	1 7	0	35	5 7	1 14	0	40
44	3 1	0 58	0	29	3 14	1 0	0	30	3 52	1 4	0	33	4 45	1 11	0	39
45	2 36	0 54	0	27	2 50	0 57	0	28	3 28	1 0	0	31	4 22	1 8	0	37
46	2 11	0 50	0	25	2 25	0 53	0	26	3 4	0 57	0	29	3 59	1 5	0	35
47	1 46	0 45	0	22	2 1	0 48	0	24	2 41	0 53	0	27	3 37	1 1	0	33
48	1 21	0 40	0	20	1 36	0 43	0	22	2 17	0 49	0	25	3 15	0 59	0	32
49	0 56	0 34	0	17	1 12	0 38	0	19	1 53	0 45	0	23	2 51	0 56	0	30
50	0 32	0 25	0	12	0 47	0 31	0	15	1 30	0 41	0	21	2 29	0 53	0	29
51	0 7	0 12	0	6	0 23	0 21	0	10	1 6	0 36	0	19	2 7	0 49	0	27
52	0 0	0 0	0	0	0 0	0 0	0	0	0 42	0 28	0	15	1 44	0 44	0	24
53	0 0	0 0	0	0	0 0	0 0	0	0	0 19	0 19	0	10	1 22	0 39	0	21
54	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 59	0 34	0	18
55	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 37	0 27	0	15
56	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 14	0 16	0	9
57	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
58	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
59	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
60	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
61	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
62	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
63	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
64	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0
65	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0

Tabula Eclipsis Lune Sole existente

Tertia.

Argumenti Lune Signa. 6

8

7

Latitudo lune visa.	Quarta ecl. ptica.	Tempus caus.	Ab ortu media.	Ab ortu lune.	Quarta ecl. ptica.	Tempus caus.	Ab ortu media.	Ab ortu lune.	Quarta ecl. ptica.	Tempus caus.	Ab ortu media.	Ab ortu lune.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
0	21 16	1 4	49	65	21 17	1 3	49	68	21 17	1 3	49	69
1	20 55	1 4	49	65	20 57	1 3	49	68	20 57	1 3	49	69
2	20 34	1 4	49	65	20 37	1 3	49	68	20 37	1 3	49	69
3	20 13	1 4	49	65	20 16	1 3	49	68	20 17	1 3	49	69
4	19 52	1 4	48	65	19 56	1 4	48	68	19 57	1 3	48	69
5	19 31	1 4	48	65	19 36	1 4	48	68	19 37	1 3	48	69
6	19 10	1 4	48	64	19 15	1 4	48	67	19 18	1 3	48	68
7	18 48	1 5	47	64	18 55	1 4	47	67	18 58	1 4	47	68
8	18 27	1 5	47	64	18 35	1 4	47	67	18 38	1 4	47	68
9	18 6	1 5	46	64	18 14	1 5	46	67	18 18	1 5	46	68
10	17 45	1 6	45	64	17 54	1 5	46	67	17 58	1 5	46	68
11	17 24	1 6	44	63	17 34	1 6	45	67	17 38	1 5	45	68
12	17 2	1 7	43	63	17 14	1 6	44	66	17 18	1 6	44	67
13	16 40	1 8	42	63	16 53	1 7	43	66	16 58	1 7	43	67
14	16 19	1 8	41	63	16 33	1 7	42	66	16 38	1 7	42	67
15	15 58	1 9	40	63	16 13	1 8	41	66	16 18	1 8	41	67
16	15 37	1 9	39	62	15 52	1 8	40	65	15 58	1 8	40	66
17	15 15	1 10	38	62	15 32	1 9	39	65	15 38	1 9	39	66
18	14 54	1 11	36	62	15 12	1 10	38	65	15 18	1 10	38	66
19	14 33	1 12	34	61	14 51	1 11	36	65	14 58	1 11	36	66
20	14 12	1 14	32	61	14 31	1 12	34	64	14 38	1 12	34	65
21	13 50	1 16	30	61	14 11	1 14	32	64	14 19	1 14	32	65
22	13 29	1 18	27	60	13 51	1 16	29	64	13 59	1 15	30	65
23	13 8	1 20	24	60	13 30	1 19	26	63	13 39	1 17	28	65
24	12 47	1 23	20	59	13 10	1 21	23	63	13 19	1 19	25	64
25	12 26	1 28	14	59	12 50	1 23	20	62	12 59	1 21	22	64
26	12 4	1 36	6	59	12 29	1 26	16	62	12 39	1 25	18	63
27	11 43	1 41	0	58	12 9	1 32	9	61	12 19	1 29	13	63
28	11 21	1 40	0	58	11 49	1 40	0	61	11 59	1 41	0	62
29	11 0	1 39	0	57	11 28	1 39	0	60	11 39	1 40	0	61
30	10 39	1 38	0	57	11 8	1 38	0	59	11 19	1 39	0	61
31	10 18	1 37	0	56	10 48	1 37	0	59	10 59	1 38	0	60
32	9 57	1 36	0	56	10 28	1 36	0	58	10 39	1 37	0	60

In opposito augis Eccentrici sui.

Tertia.

4 5
Argumenti Lune Signa. 6
8 7

Latitudo lune visa.	Pa- cta ecly- pti- ca.	Tempo calus	Abotus lune media.	Abotus lune m.	Pa- cta ecly- pti- ca.	Tempo calus	Abotus lune media.	Abotus lune m.	Pa- cta ecly- pti- ca.	Tempo calus	Abotus lune media.	Abotus lune m.
m	p m	b m	m	m	p m	b m	m	m	p m	b m	m	m
33	9 36	1 35	0	55	10 7	1 35	0	58	10 19	1 36	0	59
34	9 14	1 33	0	54	9 47	1 34	0	57	9 59	1 35	0	58
35	8 53	1 31	0	53	9 27	1 33	0	56	9 39	1 34	0	58
36	8 32	1 30	0	52	9 6	1 32	0	56	9 20	1 33	0	57
37	8 11	1 29	0	51	8 46	1 31	0	55	9 0	1 32	0	56
38	7 49	1 27	0	50	8 26	1 30	0	54	8 40	1 30	0	55
39	7 28	1 26	0	49	8 5	1 28	0	53	8 20	1 29	0	54
40	7 7	1 24	0	48	7 45	1 26	0	52	8 0	1 27	0	53
41	6 45	1 22	0	47	7 25	1 25	0	51	7 40	1 26	0	53
42	6 24	1 20	0	46	7 5	1 24	0	50	7 20	1 25	0	52
43	6 3	1 18	0	45	6 44	1 22	0	51	7 0	1 23	0	51
44	5 42	1 16	0	44	6 24	1 20	0	49	6 40	1 22	0	50
45	5 20	1 14	0	43	6 4	1 18	0	47	6 20	1 20	0	49
46	4 59	1 12	0	42	5 43	1 16	0	46	6 0	1 18	0	48
47	4 38	1 10	0	40	5 23	1 14	0	45	5 40	1 16	0	47
48	4 17	1 8	0	39	5 3	1 12	0	43	5 21	1 14	0	45
49	3 55	1 5	0	38	4 42	1 10	0	42	5 1	1 12	0	44
50	3 34	1 2	0	36	4 22	1 8	0	41	4 41	1 10	0	43
51	3 13	0 59	0	34	4 2	1 6	0	40	4 21	1 8	0	42
52	2 52	0 56	0	32	3 42	1 4	0	39	4 1	1 6	0	41
53	2 30	0 53	0	30	3 21	1 1	0	37	3 41	1 4	0	39
54	2 9	0 49	0	28	3 1	0 58	0	35	3 21	1 1	0	37
55	1 48	0 45	0	26	2 41	0 55	0	33	3 1	0 58	0	36
56	1 27	0 40	0	23	2 20	0 52	0	31	2 41	0 55	0	34
57	1 5	0 35	0	20	2 0	0 49	0	29	2 22	0 52	0	32
58	0 44	0 29	0	17	1 40	0 44	0	27	2 2	0 48	0	30
59	0 23	0 21	0	12	1 19	0 40	0	24	1 42	0 44	0	27
60	0 1	0 3	0	2	0 59	0 34	0	21	1 22	0 39	0	24
61	0 0	0 0	0	0	0 39	0 27	0	16	1 2	0 32	0	21
62	0 0	0 0	0	0	0 19	0 19	0	10	0 42	0 28	0	17
63	0 0	0 0	0	0	0 0	0 0	0	0	0 22	0 20	0	12
64	0 0	0 0	0	0	0 0	0 0	0	0	0 2	0 6	0	4
65	0 0	0 0	0	0	0 0	0 0	0	0	0 0	0 0	0	0

Tabula Semidiametrorum Luminariū & Umbre.

Linee numeri cōmunes.		Semi diane ter visual Solis		Semi diane ter visual Lune.		Semi diane ter ymbre		Varia tio ym bre mi nuēda			
Sig.	g.	Sig.	g.	m.	fa.	m.	fa.	m.	fa.		
0	0	12	0	15	40	14	30	37	42	0	0
0	5	11	25	15	40	14	31	37	44	0	0
0	10	11	20	15	41	14	32	37	47	0	0
0	15	11	15	15	41	14	34	37	51	0	1
0	20	11	10	15	42	14	36	37	56	0	2
0	25	11	5	15	43	14	38	38	3	0	3
1	0	11	0	15	45	14	41	38	11	0	4
1	5	10	25	15	47	14	45	38	21	0	5
1	10	10	20	15	49	14	49	38	32	0	6
1	15	10	15	15	51	14	54	38	45	0	7
1	20	10	10	15	53	14	59	38	59	0	8
1	25	10	5	15	55	15	5	39	14	0	10
2	0	10	0	15	58	15	12	39	31	0	12
2	5	9	25	16	0	15	19	39	42	0	14
2	10	9	20	16	3	15	26	40	8	0	16
2	15	9	15	16	6	15	34	40	28	0	18
2	20	9	10	16	9	15	42	40	49	0	21
2	25	9	5	16	12	15	50	41	11	0	23
3	0	9	0	16	15	15	59	41	33	0	26
3	5	8	25	16	18	16	8	41	56	0	28
3	10	8	20	16	22	16	17	42	21	0	31
3	15	8	15	16	25	16	27	42	47	0	33
3	20	8	10	16	28	16	37	43	13	0	36
3	25	8	5	16	32	16	47	43	38	0	38
4	0	8	0	16	35	16	56	44	2	0	41
4	5	7	25	16	38	17	5	44	26	0	43
4	10	7	20	16	41	17	14	44	49	0	45
4	15	7	15	16	44	17	22	45	11	0	47
4	20	7	10	16	46	17	30	45	31	0	49
4	25	7	5	16	48	17	38	45	50	0	51
5	0	7	0	16	50	17	44	46	7	0	53
5	5	6	25	16	51	17	49	46	22	0	54
5	10	6	20	16	52	17	54	46	34	0	54
5	15	6	15	16	53	17	58	46	44	0	55
5	20	6	10	16	54	18	1	46	51	0	55
5	25	6	5	16	55	18	3	46	55	0	56
6	0	6	0	16	55	18	4	46	57	0	56

Tabularum Eclipsium ad. Georgij Peurbachij.

Viri in Astronomia & omni Mathe
matica perspicacissimi

§ J M J S.

Venerabili & egregio viro dño Georgio

Ratzenperger Artiū & philosophiæ magistro. Facultatis artiū

Studiū Viennensis decano optime merito Georgius

Tannstetter Collimitus Lycoripensis Artiū

et Medicinæ Doctor S. D.



Thil mihi inter omnia quæ in animo sunt plus obuiâ uenit: & memoriam aliquando sollicitam uehemētius angit: q̄ gratificari his qui de me & studiosis (mathematices præsertim) quoridie bene merentur. Ut enim munificentia dono inter mortales nihil est præstabilius: ita et gratitudine: quæ beneficentia correspondet: nihil esse debet in animis nostris potius: propterea q̄ per eam humanæ cuiusdam recordationis indicium: & bene actorum memoria exhibet. Eam ob rem quū statuissem dare in lucem emendatiorē Ioannis de monte regio Primi mobilis tabulam Tu mihi Georgi ueniebas in mentem: & inter primos memoriam quætebas: cul ut merenti optime hæc dicarentur. qui præ cæteris Astronomiæ subtilissima experimēta prosequeris: & tam eius artis studiosos amas: q̄ artem amplecteris. Hanc tabulā tu sūmes in animi tui oblectationē: & nostræ erga te beniuolentia testimonium. Non quidem q̄ existimare debeas: me hac oblatione officium absoluerē uoluisse: quod tibi in maioribus promptū esse debet. Verum q̄ mihi in exemplaris climati obtinēda copia fuisti adiutor: & operam nostrā in his edendis præclaris operibus probare uisus es. Admitte igitur apud te quicquid nostra uoluntas sedulo tua gratia instituit: & tibi persuade: me totū aliquid quando facultati artium (cuius iam agis supremū magistratum) summa diligentia summiq̄ uigiliis benefacturum. Vale suauiter, Vienne Austria Quinto kal's Martias Anno Christi. 1514.

HA 3



¶ Andree Siborii Boij In tabulam primi mobilis Præfatio.

IOANNIS DE MONTE REGIO Mathematici cōsummatissimū opus tabularum Primi mobilis: nunq̃ satis laudatū: foelicissimo auspicio almi Viēensis archigymnasii: cuius is alumnus erat: (lectores ornatissimi) in lucem prodit. vt ingenuarum rerum amatores in cœlestis machinæ cōtemplationibus voluptuentur: ex his prouectum accipiant: & in maiora harum iuuenēto exurgāt: vt & ipse Ioannes ductu præceptoris sui doctissimi Georgij Peurbachii in summū excreuit mathe-
maticum. Sed quid mirum: si ipse longeuior uel præceptorem vicerit: uel plura scripta ediderit: dū modo & gnanus quisq̃ cui in humeris gigantis stare conceditur: plura q̃ ipsemet gigas & remotio-
ra (si minime torpeat) videre possit: gigantis magnitudine atq̃ fulmine subnixus. Hoc exemplo si seduli si studiosi in horum gigantum libris esse contendamus: ipsorum & quorumuis doctissimorū
humeris ad pulchra & ingenua uidenda traduci & trāsportari poterimus. quo & nostram gloriam docte posteritati transmittemus. Habes charē lector in his tabulis primi mobilis amplissimā arē
Nouas tabulas calculandi: instrumenta noua cudendi: tractatulos nouos eliciendi. Sunt enī theo-
reumata uniuersalia omni habitationi: omni climati seruientia: ex scientia sphericorum triangulo-
rum excusa, quæ a doctissimis huius artis & macte ingenio uiris multo amplius q̃ presentes cano-
nes habent: extendi possunt. Nondum est scientia primi mobilis exhausta, non sunt omnes circuli
axes & poli satis contemplati. semper aliquid nouæ inuentioni patet. Quod horoscopia Ioannis
Stabii Austraci testari plane possunt: & circulus illuminationis nuper a me in canonibus globulæ
cosmographiæ cōmemoratus. Est in his tabulis uniuersalis modus inueniendi arcus quorumcūq̃
circularum sphaeræ: siue magnorū: siue aliorum. Est opus nobile: cum ipso cœlo pro quacūq̃ tem-
poris uicissitudine sempiternū. Nedum cœlestis corporis: sed & terreni: quod in modum caræ oēs
circulos & arcus tanq̃ a sigillo cœlesti impressos: tam diuersimode imaginatos accipit. siue cosmo-
graphice: siue scheotrice: siue alia quauis uia contemplari libeat. Quacūq̃ etiam sectione parabo-
la: anti klimene siue elipsi. Item kilindrona: concaua siue conuexa: quacūq̃ etiam projectionis uia.
Pendent item ex hac primi mobilis scientia instrumenta pene infinita. Astrolabium: saphea: orga-
num Ptolæmi: metheoroscopion: armillæ: torquetum: rectangulus: æquatoria: compassi: quadra-
tes: & alia id genus multa. O q̃ ampla: q̃ nobilis: q̃ necessaria omnibz astronomiæ studiosis: & tanq̃
alphabetaria & præliminaris scientia. sine qua nihil perfectum: nihil cōsummatū in hac astronomi-
ca præcellenti disciplina. Age igitur quisquis es cœli uerus amator has tabulas ductu diligentia &
solicitatione cōfratris mei charissimi doctoris Georgij Tannstetter impressioni datas. Emitto: co-
lito: nocte dieq̃ manu uersato. Promitto laboris præmium dignissimū: utilitatem maximā: nō sine
gloria cœlesti. Quam christus dominus summus cœlorum arbiter omnibus cœli & uere christia-
ne pietatis studiosis præstare dignetur. Amen.

¶ Problemata cū expositionib⁹ eor⁹
Per venerabilem virū magistrū Joannē Germanū de
Adontegio composita pro tabula de Primo mobilī
vniuersali ⁊ perpetua fausto sydere incipiunt.

Problema Primum.



GENE
lem tabu
lae vsū in
primis ex
planare.

Omnes numeri
in hac tabula posi
ti representant ar
cus circumferētia
rū maiōr in sphe

ra existentium. Eos numeros duplici maniera distingrim⁹.
Sunt enī laterales alij alij areales. ⁊ Duo laterales bī
partito ordine cernes. Descendentes quidem qui sinistrē
lectoris manū opponunt: transuersos autē qui in fron
tibus paginarū situantur. Quorū vterq; titulo proprio
signatos ad nonagenos vsq; gradus extendi oportuit.
Alios autē areales vocamus: q; in area tabule iacent:
quos etiā titulus indicat. Illi sunt numeri precipui no
stre tabule: qui perinde quasi porte quedam ad diffic
les ⁊ abstrusas Astronomicas considerationes habentur.
per quas ingredienti supputatori non minus exquisitē
q; breuiter plerq; scitu incredibilia deteguntur. Adint
meꝝ alius opus est numeri: nisi gradus integros scin
dere solerent astronomi. Cum igit nonnulli imo creber
rime numeris introituālib⁹ adbeant minutie: tabula
autē omnes laterales numeros habeat integros: opere
precii erit p̄disserere quo pacto ex numeris fractis (si
qui subiciant) propōsitū quodlibet c̄sequamur. Luitas
rci gratia et si varias inuenerimus vias: eam tamē soli
quē tam breuis q; facilis videt/ monstrare fuit consiliū.
Minis itaq; proximis numeris principalibus differen
tias suas intericiamus: vt cūctisq; constare quantum cui
libet gradui laterali in quōq; parte tabule responderit.
Quo deniq; effectū est: vt vniuscūq; arealis numerus
duos circa se numeros habeat. Alterū quidē sub se: quē
vocabim⁹ differentiā descendētē vel subiecticiam. Al
terū autē iuxta se versus dextrā: qui non iniuria appella
bitur differentiā lateraliē. Tabulam deinde partis pro
portionalis more perualgato condidimus: numerū vi
delicet quēuis in fronte tabelle scriptum sibi ipsi iun
gēdo: ⁊ ipsum eundem rursus collecto: ac deinceps a ta
li continua adiectione numeri memorati non cessando
pulsū ad seragenariam multiplicationē vētum fuerit.
Hanc vocabim⁹ tabellam manūalem: q; semper in manu
supputatoris gestari aut ante oculos eius libere iacere
debeat/ nulli inserta volumini: quo expeditius ad vnam
quāq; paginam tabule generalis accomodari queat.
Operaturis igit nobis duo numeri introituales sunt ne
cessarii: dupliciterq; ingrediēdi tabulā cōtingit: laterali
ter ⁊ areatim. Laterali quidē dum vterq; nume
rorū introituāliū foris accipit inter numeros laterales:
areatim autē qñ alter quidē numeroꝝ introituāliū foris/

alter autē in area tabule inter numeros principales pet
pendit. Siue itaq; laterali ter siue areatim tabulā ingre
diaris: semp maior numerus in porta trāsfuerit id est in
frōte tabule quēdā est si fractionib⁹ caruerint. Alterū
introitus lateralis vtrūlibet etiā numeroꝝ vtriusq; acci
pi permittit. Laterali ter igit ingreffiuro tibi si vterq; nu
merus introituālis offeret integer: quere maiorē in fron
te tabule/ veluti iamūc monum⁹: reliquū autē inter late
rales descendentes versus sinistrā manū supputatoris
nam ē directo ei⁹ in columna sua reperies arcū quēsitū.
Si vō alteri eorū minutia quēuis adiecta fuerit: vbi igit
ei qui in fronte tabule accipiendus erat: intra primo cū
numeris integris proximō minorib⁹: ⁊ numerū arealem
vt prius nota/ cum differentiā laterali iuxta eum posita.
Deinde minutias gradibus integris adiacentes quere
in fronte tabelle manualis: numerū autē minutiarū differe
ntiē lateralis in latere descendētē. quodq; in angulo cō
muni occurret subscribe numero areali iam dudū fectua
to. In eodē rursus latere descendētē quere numerū scū
darū si que fuerint differentiē lateralis: ⁊ quod ē directo
earum inuenies sub minutias in fronte tabelle acceptas
subscribe prius notatis: vñ quodq; suo generi. ⁊ Potē
ris autē (si celeritate calculi gaudes) vice secundariū plu
riū trigenario numero accipere vnā minutia primā: aut
eas proptus negligere/ si pauciores q; triginta fuerint.
Sic enī semel tū tabellās manūalem introitū fac erit: ⁊
nunq; plures q; triginta secundas perdes: quē quidem
iactura crisis putat in omnib⁹ ferme computationibus
astronomicis. At aut scias denominationē cuiuslibet nu
meri in area tabelle manualis reperi/ documēto vulga
ri vtendū est tali. Quādo alter quidē duorum numeroꝝ
introituāliū gradus habet/ alter autē minutias primas:
numerus posteriori columnellē minutias primas cri
bebit: prioz aut gradus representabit. Dum vō vterq;
numeroꝝ introituāliū minutie significans: posteriori nu
merus columnellē secundas: prioz autē minutias primas
p̄bebit. At si alter quidē numeroꝝ introituāliū min
utias primas/ alter autē secundas cōmplectit: posteriori nu
merus columnellē tertias: prioz autē secundas decernet.
Vtrū quoniam butulcemodi numeroꝝ varia representa
tio facilius cognita est abundet/ a plerisq; omnibus li
cubet: at nō ampliorē imp̄sentariū de ea sermonem fa
ciemus. Butulcemodi igit numeros locis suis oportu
nis conscriptos in vnam summam congrega: secundas
videlicet secundis/ minutiasq; minutis: ⁊ gradus gra
dibus addendo. Vbi aut fractio quēlibet formula ope
rationis cogente/ seragenariū trāsgressa fuerit/ numerū/
vnitate ordinī p̄cedenti adicias: quatiens a posteriori
seraginta tolli possunt: quemadmodū in alijs supputa
tionibus similibus fieri solet. Si aut maior numero in
troituāliū erit/ integro/ minor habeat fractionē alī
quam: non aliter q; prius operaberis: hoc vō animad
uerfo: q; vbi iam dudū accepisti differentiā lateralem/
hic differentiā descendētē assumas. Vtrorū demū nu
merorū introituāliū minutias habente iam expōsitum
opus ingeminabitur. Intrādo enī tabellam manūalem
tam cū minutis numeri introituālis maioris ⁊ diferen
tia laterali/ q; cū minutis numeri minoris ac differentiā
descendētē: quicquid ex tabella manūali colliges: nume
ro areali tabule generalis superaddes. Duro credide
rim hominē esse capite: qui hec p̄cepta viri etiā ad me
dium trāscura celeritate ingenij sui nō ante capiet. Si
quis tamen ad huc scrupulis animū toqueat: exempla
ri deinceps instructione penitus eueletur. Hacten⁹ de
introitu laterali. Nunc areatim ingreduendo tabulam
quid facto opus sit deprimemus. Adiorē duos nume
rorū introituāliū in fronte tabule generalis accipito:
qui si fuerit integer: nullo videlicet fragmēto iminutus:

quere sub eo in area tabule reliquum id est minorem introitualem numerum. et directo cui eius (si modo ad vi-
guem repertus fuerit) habebis arcum questum sinistros
sum in latere descendenti. Si autem buissemus de secundum
introitualem numerum non inueniret pæcie in area ta-
bule: accipe pro primo minorem eo: numerumque lateri de-
scendenti ei oppositum cum differentia descendenti no-
tato. Deinde numeri tui cum quo intrare volebas 7 nu-
meri minoris eo in tabula accepti differentia elice. quã
quere in area tabellæ manualis in ea columnella cui in-
scribitur numerus minutiarum in differentia descendenti
existenti. et directo eius in latere sinistrossum habebis
minutias numero prius notato addendas. Si quæ tũ
secundæ in differentia subiecta fuerint: eas negligere
poteris: nisi trigenerari superent numerum. tunc enim lo-
coparum vnam minutiam primam accipere licet. hoc nempe
pacto nihil erroris sensibilibus operi tuo insinuetur. Si
primus quocumque introitualem numerum: sis videlicet qui in
fronte tabule accipendus erat: fractione non caruerit
opus (iamnum expostum cõduplicare oportebit. Nam
primo intrabis cum numero qui pro primo minor est eo
quem in tabulam mittere volebas: et accipendus serva
velut erit numerus in latere descendenti occurrens:
diligenter antea monitum est. Deinde pariter agendum est
cum numero pro primo maiori: et omnino ut prius ac-
cipiendus est numerus in latere descendenti. cuius demum
et prius servati differentia animaduertenda est. Nam
itaque differentia cum minutis numeri introitualem ma-
ioris mitte in latera tabellæ manualis. quodq; in angu-
lo communi ut affolet occurrerit minue et maiore duorum
numeriorum paulatim elictorum: eo videlicet qui per
primam operationem simplicem inueniens est. sic etiam
notum relinquatur arcus quem petebas. Illud autem
circa introitum arealem non est obliuione prætercundum:
quod quando duo numeri in tabulam mittendi sese non
cedunt: quadrantæ circuli id est nonaginta gradus semp
pro numero questio accipienda. Aliud demum memoriæ
tue administriculum tradimus. Quotiens tabulam ge-
neralem lateraliter ingrederis: tabellam manulem in late-
rali quocumque (si opus fuerit) intrabis. et si sciatum hinc
numeros quosq; immiseris: illi arcum quocumque (si res
ipsa postulat) minutias inferito. Ceterum exemplari sup-
putatio facilius forsitan intelliges quæcunq; tradita sunt
Propositioni mihi duo numeri: vnus quidem graduum
47. alter autem 39. lateraliter in tabula mittendi. Accep-
to numero maiore 47. graduum in fronte tabule: sub eo in
latere descendente secundo animaduerto numerum minorem
39. graduum. et directo cuius inuenio numerum areale gra-
duum 27. minorum 24. et 39. quem querebam. Et iam
offerat mihi maior numerus 53. graduum 7. 27. minutiarum.
minor vero 48. graduum. Intro ut prius cui gradus 53. et
48. inuenioque numerum arealem 36. mi. 24. 39. 22. Dif-
ferentiam autem lateralem mi. 33. 39. 4. Deinde sub 27.
minutis acceptis in fronte tabellæ manualis in versu
trigintatium minorum inuenio mi. 14. fa. 51. subscribenda
numero areali antea notato. In eademq; columnella
iuncta quattuor secundas differentie lateralis reperio
secundas duas supponendas item numero areali cum
reliquo prius subscritto. Quibus cunctis in vnum col-
lectis aggregat arcus questus 36. mi. 39. secund. 15. Su-
peruacaneum autem deinceps videt subnectere exempla-
rem calculum: minores duorum numerorum introitualem
minutiam habente: cui ne minimo quidem momento prædicta
differat supputatione. Cuius offerat quæsiã vtriusque nu-
merum fractum: maiorem quidem 36. mi. 39. minor autem
35. mi. 43. Intranti ergo mihi cui 64. 7. 55. gradibus oc-
currit numerus arealis 37. 47. mi. 24. 39. 46. cum differ-
entia laterali mi. 21. 39. 25. et differentia descendenti mi. 45.

39. 29. Cum. 37. itaq; minutis numeri maioris 7. 31. mi-
nutis differentie lateralis elicio per tabellam manulem
mi. 19. fa. 7. quas subscritto areali numero supra notato
Ad aliter cum 43. minutis numeri minoris 7. 45. minu-
tis differentie lateralis per tabellam manulem colligo
mi. 32. fas. 15. subscribendas numeris predictis. Quibus
tandem in vna cõgesta summa: 36. mi. 16. secund. 8. ero-
rient. In huiusmodi autem supputationibus secundas (si
trigenerario numero pauciores sint) negligere concedit.
Idcirco quibus etiam trigenerari superantibus vna minutia
prima band absurde supponetur. Nam quippe ratio-
culi si quid præteribit: nequaquam ab vno minuto multum
recedere poterit. Nec de introitu laterali quibuscumque
Nunc ad introitum arealem animus appellandus est.
Sint duo numeri propostiti: quorum alter quidem gradus
39. alter vero gradus. 30. minuta prima. 10. 7. secunda. 19.
cõplectis. Et ideo maioris in fronte tabule generalis: mi-
nozem autem sub eo in secunda columna offendo inter nu-
meros areales. Cui quidem sinistrosolum præponit nume-
rus lateralis descendens 53. graduum in latere talis co-
lunnæ. is igitur est quem querebam. Sed si alter ego gradus
55. alter autem 39. 2. prima. 45. habuerit: iterum accipio ma-
iorem in fronte tabule. sub quo nulli arealem numerum of-
fendo equalem reliquo datoque numero. verum pro primo
minore eo videlicet 39. mi. 32. secund. 20. quæ vbi et pro po-
sito numero decima relinquens prima. 12. secunda. 40. qui-
bus nomen tribuo differentie minoris. Numerum etiam
in latere descendenti reperto et directo bini numeri areali-
tis 39. mi. 32. secund. 20. et 51. g. seruo. Deinde differ-
entia descendente ibide reperio quæ sit. mi. 39. secund. 52. id
40. fere prima: accipio in fronte tabellæ manualis. sub q-
directe descendendo inuenio differentia minorem et dire-
cto. 19. primorum in latere descendenti tabellæ manualis.
Nec ergo 19. prima minuta adiungo 51. gradibus antea
seruatis: ut cõnsecrat arcus questus 51. mi. 19. Cuius
plus obicit mihi aliquis hocce numeros: maioris quidem
36. mi. 15. minoris vero 32. mi. 56. Accepit 67. gradus
pro numero maiore omnis minutis: minoris autem vti
propositus est dimittit. et per omnia veluti iamnum re-
positum est inuenio 36. mi. 6. quæ numeri scorsim custo-
dio. Ad aliter cui 68. gradibus tanquam maiore numero in
troitualem assumendo minorem cum quo antea usus sum
reperio 39. mi. 23. Inter hunc autem 7 prius custoditum
numeri differentia cadit 43. primorum. Cui quidem cum 15.
primis minutis iuncta 67. gradus numeri maioris facie-
tibus mitto in latera tabellæ manualis. 7 in angulo cõi
ut affolet ereipio prima. 10. secunda 4. 45. subtrahenda a
60. gradibus 7. 6. prima antebac seruatis. Quo facto re-
linquens 39. mi. 55. ferme. Et tantum enuciabo arcum ab
initio questum. Idcirco itaq; vniuersalem tabule vsum
gemino itinere expostui. in quo si crebro erere caris: ni-
hil propterea totius operis fugere te poterit. In posterum
enim præceptis quicquid agendum proponere vel laterali in
troitu vel areali: nunc quidem simpliciter nunc iterato (quæ
admodum infra videtis) absoluerim. Illud demum te me
minisse oportebit: quod quia numerus introitualem quadra-
tæ circuli transcendit: non ipsum tenore: quia nusquam in tabula
scribitur: sed residuum eius de semicirculo in tabula duas
Quod etiam vbi opus fuerit nonnunquam locis propriis ad-
monebimur. Idcirco siquid introitu areali agendum fuerit p-
numeros prope elices: persertim si parui fuerint: trigint
supputatione a veritate parum aberrare: non propter
imbecillitatem tabule: quippe q- perpetuam ac geometri-
co inniram fundamentum habet firmitudinē. Vnde quia la-
tera sua graduum finem surgit: eremata autem numerorum are-
li tenore non seruat equalē. quod quidem fieri necesse est:
ut si qua gradibus integris adbereat minutia: non tantam
portionē de differentia numerorum arealium iusta partitice

fusciat: quanta pars ipsa fuerit vnus gradus: sed aliquando maiore: quid differetie habet: et quid numerus areali pedet: et quid debeat. Alii igitur calculi calculi tui eliminabis. Numerus areali introitu elicitur rursus in tabula mittito lateralem cui maiore duos numeros p q s elicebas. 7 in area tabule fin lege introitus laterali of fides reliquit. ppositio numerorum id est minor: certa fuit supputatio. Sin aliqua fuerit differentia: ea area transi in tabella manuali cum differentia laterali introitu anguli communis tabule generalis repta. quodq; in latere deiccedeti tabelle manualis occurrit auferet numero primi elicto. hoc nāq; pacto precursus erudetur numerus quem querebas. Quod si curio delecter: computo: talem deinceps iterabis emendatione: donec per introitu lateralem veluti lammne dictum est exponeat minor duosum numerorum ab initio ppositorum. Et res est si rarissime vniuemat: exemplo tamen breuissimum lucubranda videbas. Proponat mibi quispiā boice duos numeros. g. 24. m. 37. 7 g. 23. m. 15. arcum in tabulam mittendos. Ipsis itaq; arcum tabule illatis fin traditione superioze elicitur numerus ille. g. 71. m. 45. quem rursus cum maiore ppositorum numerorum scilicet. g. 24. m. 37. laterali in tabulam transiero: et circi ppositum numerum hūc. g. 23. m. 15. secūdo. 35. Quod si equaret minorē ppositum numerum: facti digiti habet et numerus primo introitu areali elicitus. Nam vō superat eum tribus ferme minutis primis. quas quero in area tabelle manualis sub m. 8. secūdo. 23. differentia videlicet laterali introitu anguli communis in introitu laterali repta. 7 directo eius in latere tabelle colligo. 22. ferme minutias. quibus deceptis et numero primi elicto reliquit tur numerus ille. g. 71. m. 23. 7 tātus debebat esse numerus ab initio questus. Nam si cum rursus in tabulam duxero cum maiore ppositorum numerorum scilicet. g. 24. m. 37. circi ppositum numerum. g. 23. m. 15. secūdo. 39. quia a minori ppositum numerum p paucis secundis differet censui. quod quidem habu oculo intolerabile censui. non enim vbiq; quod secundas minutias ad vngue per bac tabula decomprompti in ipse: sicut neq; per rationē finitū nisi semidiametru circuli id est finitū totū in se fa quadam particulari multitudine: que perinde quasi atomi erant dispersas. Ceterū qui superstitio quodam calculo secundarū tertiarūq; ac vlteriorū minutiarum ad intima celozū in omnibus supputationib; astro nomicijs penetrare conantur: nisi nequeant q; dementes: 7 (si p officiu ei potest) q; remissi fuerint principes huius artis circa primas etiā minutias obseruandas. Quoniam per instrumenta quibus tota ferme astronomia disciplina instituit animaduerti penitus nequeunt. Quorum huiusmodi censuram nunc missam facimus: qm ad precepta particularia descendere tempus boitatur.

Problemata Secundū.

Liuslibet puncti ecliptice declinationē ab equinoctiali circulo si quam habet inquirere.

Intra tabulam nostrā lateralem cū maria solis declinatione 7 distantia puncti dati ab alterutra sectione equatoris 7 ecliptice: ea videlicet cui punctus datus vicinior fuerit. 7 in angulo communi reperies declinationē questā: borealem quide si ppositus punctus in mediocrite ecliptice boreali extiterit: meridianā autē si semicirculū ecliptice austrinū possideat. Ceterū

pli gratia Inbeoz numerare declinationē puncti terminatis quinddecim arcticis gradibus. Accipio itaq; maritimā solis obliuationē: que per experimenta recentiorū gradus. 23. 7 minutias fere triginta complectit. Sub tribus autē 7 viginti gradibus in fronte tabule perpen sice directo gradū. 15. inuenio numerum arealem graduum. 5. m. 48. secūdo. 15. cum differentia laterali. m. 14. secūdo. 19. Deinde cum. 30. minutis numeri maioris 7 14. minutis differentie lateralis intro tabellam manua lem lateralem: reperies in angulo communis. m. 7. fa. o. Similiter cum eisdem. 30. minutis 7. 19. secundis differentie lateralis eandem tabellam manua lem ingrediet mibi offerunt seles nouem secūdo cum. 30. tertis. Has itaq; minutias primas 7 secundas per tabellam manua lem elictas adiungo numero areali antebac seruato: 7 concreuit declinatio questā. g. 5. m. 55. secūdo. 24. Talis declinatio breuius etiam colligetur: si mediocritate differetie lateralis addere numero areali: quoniam triginta minuitur tribus 7 viginti gradibus adiacentes sunt medietas vnus gradus: cui ipsa tota differentia lateralis debetur. Quocirca igit q; facilius tabulam declinationis solaris quib; inuobis etiam concurre potest ante oculos habes: quātūcūq; suppellex maximā solis obliuationē. que profecto si pfectis astrorum obseruatoribus: nostrisq; assiduis inspectionib; fides habetur: varia vtiq; inuenit. Eam itaq; non ex libris: neq; ex calculo quopiam: verum per instrumenta tua accuratissime pernoles: quociq; seculo vitā ages. Nā si paulo negigentius eam deprehenderis: vniuersa astronomia tua fluctet necesse est.

Problemata Tertium.

Proposita declinatione Solis quātalibet: cui puncto ecliptice ipsa respondeat explorare.

Hoc problemata precedentis conuersione in trodicit. Prius autē q; ad opus descendatur considerandum est: quālibet declinationem (marina dempta) quattuor punctis respondere. Sunt namq; in ecliptica duo puncta declinatione prioris carientia: ea videt et que 7 equinoctiali circulo cōmūia sunt. Duo quo 7 declinationes maximas 7 equales: q; denominatione bineritas habet: que sunt caput canceri 7 in triū capitezini. Propter hoc autē memorata puncta si quoduis in ecliptica signaueris punctū tria alia eandem cū ipso vel equalē suscipietis declinationē reperire cōtin git. Talia eni q; triū puncta cōstiter ab equinoctiali circulo distantia necesse est deprehēdi: atq; idcirco equales foritū declinationes: quādam modū demonstratio certa pcludit. Proposita igit declinationē quātalibet: q; sit vnusq; q; triū arcui ei respondēt 7 ab alterutra sectione incipiet scire poterim. Denotationē autē alicuius boz arcui si m dno decisiq; nequaquā cōprehēdem: nisi q; in mediocrite ecliptice punctū ppositū existat cōptū sit: 7 in vtra q; triū ecliptice q; eadē medietas cōplectit: ascēdēt videlicet an descendēt. Ut igit ppositū ascēq; itra tabulā areati cū maria sol declinatione 7 ipsa data sol declinationē: mē directo nūci areali in latere deiccedeti colliges quāritatē arez q; sit. Ceterū. Proponat declinatio otines. g. 14. et m. 23. cui quātus debebat arcus ecliptice sic erperior. Intro primi arcum cū. 23. gradib; tanq; maria solis declinationē: accipiedo videlicet cos. 23. g. 1. frōte tabule. sub quibus deinde q; declinationē ppositā. g. 14. m. 23.

que quoniam nusquam ad vngue offert inter numeros areales: accipio numerum proximo minorem: scilicet. $\bar{g}$. 14. $\bar{m}$. 14. $\bar{f}$. 5. iurta que versus sinistra iacent $\bar{g}$. 39. ad partem feruandici differetia descendenti. $\bar{m}$. 18. $\bar{f}$. 2. 41. Differetia autem numeri arealis iam accepti 7 declinationis ppositit est $\bar{m}$. 8. $\bar{f}$. 55. quam quero inter numeros areales tabelle manualis sub. 19. minutis (erat enim differetia descendens $\bar{m}$. 18. $\bar{f}$. 41. id est. 19. ferme minutie) 7 occurrit mihi numerus proxim? $\bar{m}$. 8. $\bar{f}$. 52. cui sinistrosum oppositum minutie. 28. adiungende. 39. gradibus supra seruati. Jam igitur negotium illud absolutum efficit: si maxima solaris obliquit? $\bar{g}$. 23. precise coplectere. et. enunciare naq? declinatione pposita debet. 39. $\bar{g}$. 52. 7. 28. ferme minutis ab altera sectione egnotialiu coputanda. Ceterum quia memorata sol maxima declinatio maior qd? est. 23. minor autem 24. gradibus: intro tabulam cum eisdem. 24. gradibus perinde quasi cui maxima solis declinatione: 7 non aliter q? antebac procedendo elicto arcum. 37. graduu 7. 38. minutiaru. qui minor est arcum iam ductu seruato in vno gradu minutisq? 50. Idem itaq? differetiam mitto in latus tabelle manualis cum. 30. minutis que in maxima solis declinatione iurta. 23. gradus existit: 7 in angulo comun? geminato introitu colligo minutias 55. id est dimidium de vno gradu 7. 50. minutis. Idas. 55. minutias aufero ex. 39. $\bar{g}$. 52. 7. 28. minutis: id est ex numero p primu vsum tabule generalis elicto. sic enim reliquit arcus eclipitice questus. 38. graduu 7. 33. minutoz.

Problema Quartum.

Latitudinem Lune investigare.

Intra lateralem cum distantia veri loci lune a nodo proximo 7 cui maxima lune latitudo. reperies enim in angulo comun? latitudin? questita. Accueris autem latitudin? lune subiecta argumentu latitudinis lune addices: itradito arcu cui latitudin? quibet pposita maxima 30. lunari latitudin? habebis enim in latere descendenti edirecto numeri arealis distantia lune ab altero duoz nodoz. Sic breuissimula quadra traditioe ex distantia lune ab altero nodoz latitudin? sua: 7 viceuersa ex latitudine supposita remotioem a nodo supputare docum?: quous ad solem in simili calculo propter initium operis presentis gemino problemate vsumus. Distantiā autem lune a nodo proximo p argumentu latitudinis facillime agnosces. Nam si tale argumentu latitudinis quadrante circuli id est nonaginta gradibus minus fuerit: psummet tenebris pro distantia petita. Si vo tria signa superauerit: min? quide? fer signis existes: dempto eo a fer signis: distantia lune a nodo candere relinquitur. Si vlt?ra fer: citra nouem vo signa desinat: minue ex eo semicirculu: vt remaneat distantia a nodo qua volebas. Et aut numeru non signoz suppeditet: residuu de toto circulo erit remotio lune a nodo capitis. Et contra q? distantia ab altero nodoz data: argumentu latitudinis celari non poterit: si positioem lune in circulo suo declinitate perpendis. Cuius rei ampliore explanatione: qm? vulgaris admodu existit: tuo ingenio relinquis: ne frustra diem in rebus minimis transisse videamur. Si cui forte absentatei videret: q? a solis obliuatione ad lune latitudin? repetere transiui fecerimus: is non ab re factu confitebit? vbi similitudin? calculi animaduertit: quin et faciliorem habet supputatione lune latitudin? q? solis declinatio: q? illius quide? latitudin? maxima in gradibus declinata puris: bup? aut obliuationis marime fragmenta graduu addereant. Adde q? tabula latitudinis lunari integram habes in ea pagina cuius fronte quinario in-

significat? numero. Qualem autem denominatione: borealem scilicet an austrinā fortia? lune latitudo: ex ipso argumentu latitudinis: quemadmodu computatores motu tradunt coniectare oportebit. Cū autem in expro videamus quanta sit lune latitudo habentis distantiam a nodo. 27. graduu. Accipio in fronte tabule qnq? gradus maxime latitudinis: in latere autem descendenti. 27. gradus. iurta quos offendit $\bar{g}$. 2. $\bar{m}$. 1. 6. $\bar{f}$. 4. tantiaq? pnuicio lune questam latitudin?. Cū Porro cupiat quispiam lune remotione a nodo dum latitudo eius. $\bar{g}$. 1. $\bar{m}$. 40. $\bar{f}$. 25. coplectit: intrabo eadem aream tabule vbi offerit mihi numerus arealis proxime inferiori data latitudine $\bar{g}$. 1. $\bar{m}$. 37. $\bar{f}$. 2. 34. iurta. 19. grad? laterales. Ille autem numer? areal? demptus ex ea latitudine relinqt $\bar{m}$. 2. $\bar{f}$. 51. hanc differentiam vide in area tabelle manualis sub. 3. 5. minutis (erat enim differetia descendens in tabula generali $\bar{m}$. 4. $\bar{f}$. 56. et edirecto sinistrosum ilater tabelle sunt 34. minutie adiungende. 19. gradibus antebac repositis. Distantiā igit a nodo erit $\bar{g}$. 54. 19. 7. minutiaru scilicet. 34.

Problema Quintum.

Quilibet arcus eclipitice ab equinoctiali sumentis initium ascensionis in sphaera recta numerare.

Intra aream cum completio arcus eclipitice dati et complemento declinationis eiusde? quodq? in latere descendenti occurrit: ex quadra circumferetie minuas. nam quod reliquu erit: ascensionem rectam manifestabit quam querebas. Complementu autem arcus cuiuscuq? est differetia eius 7 quadrantia circuli: qui nonaginta continet gradus. Et si arcus cuiuspiam aliunde q? ab equatore inchoat ascensionem rectam metiri libeat: cum ipse sit excessus duoz arcu? eclipitice ab equatore inchoatoz: vbi vtriusq? eorum ascensionem rectam acceperis: 7 alteram ex altera dempseris: residuu pro ascensione questita teneto. Preterea autem documentu tradimus de arcu eclipitice quadrante non superate. Nam si ppositus quispiam arcus eclipitice quadra circuli maior erit: erit minor quide? semicirculo: subtrahamus eum ex semicirculo: 7 residuu modo predicto inuenta ascensionem recta ex semicirculo minuemus. sic enim ascensio recta arcus ppositi relinquet. Si autem arcus ppositus semicirculo quide? maior fuerit: minor autem tribus quartis: ablato inde semicirculo: reliqui ascensionem recta numerabim? modo predicto. Ipsa enim adiuncta dimidio circulo ascensionem rectam arcus ppositi constabit. Et si arcus eclipitice ppositus tres quartas circumferetie excederit: eum ex toto circulo demet: reliqui ascensionem rectam quemadmodu ppositu est dicta et ex toto circulo recipere relinquitur ascensio recta arcus ppositi. Quadranti autem eclipitice coascendere quadrante equatoz: illi quocq? duplicato hunc duplicato: 7 illi triplicato hunc triplicato in sphaera recta debet? nemini medio erit: docto astro nomo dubiu crit. Sermo quide? prolixus est: operatio autem facilis admodu: mihi habitudine eclipitice ad equatorem proxius te lateat. Cū Vnde breui exemp? in primis quinq? gradibus arctis: 7 quoniam ascensionem recta quero tali ordine. Coplementu quinq? graduu est $\bar{g}$. 85. declinatio aut puncti terminat? quintu arctis gradum est duoz fere graduu. cuius declinationis complementu est $\bar{g}$. 88. Intro itaq? tabulam arearum cui $\bar{g}$. 88. 7. $\bar{g}$. 85. 7. inuenio fm tenore pbi ac generalis problemat? arcu 85. graduu 7. 25. minutoz: a demptis ex nonaginta gra

diſus relinquit aſcenſionem rectam quattuor graduum ⁊ 35. minutiarum. De arcu autē eclipſice non ab equatore ſed aliunde initium ſumēte exemplarem computationē nō ſubiſcimus: quoniā ſorinula operationis ſimilis eſt illi quam nunc expoſuimus ſi eam ingeminaueris: ⁊ tunc pro duarum aſcenſionū hoc pacto inuentarum alteram ex altera ſubtraheris.

Problema Sextum.

E aſcenſione recta ꝑpoſita ab alterutra ſectionū equinoctia ſum incipiente arcum eclipſice ſibi debitu indagare.

Cum præſens problema ꝑ precedentia ꝑ alias quorū tabulas vulgares abſolvere nemo nesciat. tamē quo generalis ſubtilitate atqꝫ utilitas noſtre tabule ꝑſpectu clarioꝝ fieret libuit ad hoc repertienda tabula iſtam accō modare. Intra igiꝫ lateraliter cum cōplemento iꝑſius aſcenſionis recte ⁊ maxima ſolis declinationē. quodqꝫ angulus cōmūnis offertur: ex nonaginta gradibus minue. cum reſiduo autē ⁊ iꝑſa aſcenſione recta areatim demum intra tabulam reperies nāqꝫ ex directo numeri arcualis i latere deſcēdēt arcum eclipſice queſitum. Hec quidē dū aſcenſio recta ꝑpoſita minor fuerit quadrante. Si enī quadrans præciſe fuerit: arcum quoqꝫ eclipſice nonaginta gradibus numerari oportet. Et ſi quartā circum ferentie ſuperauerit: minor tñ ſemicirculæ exiſtens: ſubtrahere iꝑſam ex ſemicircumferētia: ⁊ cum reſiduo fac ut ſupra monitū eſt. arcūqꝫ eclipſice poſtremo elictum ex dimidio circulo aufer. reliquū enī oſtēdet arcū eclipſice queſitū ab initio arietis numeradū. De ſi aſcenſio ꝑpoſita ſemicirculo maior: erit iterū minor tamē quadrante triplicato: demas ex ea dimidiū circuli: ⁊ cum reſiduo arcum eclipſice vti antebac iuſſimꝫ addiſcas. qui deinceps ſemicirculo adiectus cōſtabit arcum eclipſice quē poſcebas. At ſi iꝑſa aſcenſio recta tres quadras circuli tranſgrediat: ſi eam ex toto circulo minue: ⁊ cum reliquo vti ſuperius traditum eſt eclipſice arcum agnoſce. Iſ enī ex integra circumferētia decuſſus relinquet arcum eclipſice queſitum. Cetera quidē compluſcula vident: exrectio autē ſupputatoria tam brevis qꝫ facilis criſtit. ꝑ ſacilius tamē atqꝫ celerius ſi lactaueris te poſſe ꝑpoſita abſolvere ꝑ tabulas aſcenſionū rectarum vſitatas: non ibidem iſſicias. Ceterum ꝑpter hunc uſum ſolum non condidimus hoc opus: quia ꝑ iꝑſum noua aſcenſionū rectarum tabula particularis: iteqꝫ obliuationis ſolaris: cum ceteris ex ea ꝑedētibꝫ ꝑ componi poſſint ⁊ nimirū debeant noſtra ꝑſerſim tempeſtate/ quādo maxima ſolis declinatio minor eſt ea que paſſim ab aſtronomis ſupponit. Comperitū eſt enī non minꝫ ceteris qꝫ recentibus ex perimētis eam baud quaꝫ tranſcendere gradus tres ⁊ videnti cum triginta minutis. Quare iteꝫ alibi latius diſſerenti licentia dabitur. Innumeras itaqꝫ particulares inſerit ſecundē matris bec noſtra ꝑriet tabulas: quemadmodū inferius ꝑedētibꝫ videbiſ. Ceterū exemplarem accipe computationē. Sit oblata aſcenſio recta. 41. gradium: cui quantus arcus eclipſice debeas expoſtūdi eſt. Cōplementū butis aſcenſionis eſt. 47. gradus. quos cum maxima ſolis declinatione 5. 23. m. 30. m. itto lateraliter in tabulā: in uincio fm iuſſa 5. 16. m. 57. ꝑa. 18. būc numerū demo ex. 90. remanēt 5. 73. m. 2. ꝑa. 42. Illud ergo reliquū cum iꝑſa aſcenſione recta ꝑo-

ſita areatim in tabulam tranſſero: abſolutaqꝫ ſupputatione colligo arcū 55. 7. 29. minutorꝫ qui querebat.

Problema Septimū.

Si qꝫ arcus eclipſice ſua aſcenſionem rectam equauerit: altero termino eius cognito: reliquum quoqꝫ manifeſtare.

Cum arcus eclipſice intelligēdi eſt: qui totus inter duo ꝑiorima puncta cardinalia concludit: ad neutꝫ tamen deſinens. Intra itaqꝫ tabulam areatim cum cōplemento declinationis que debet ꝑuncto terminali notō: ⁊ maxima declinatione ſolari. nam quod in latere deſcēdēt ut moris eſt colligis: ex quadrante ſumō tñ relinquit declinationē alterius puncti finalis. Hinc ex tertio problema iꝑſe ꝑunctꝫ cui talis tribuit declinatio innoteſcet. Ceterū ꝑponat arcus eclipſice a capite tauri ſu mens initium: qui veluti ꝑponit equalis ſit aſcenſioni ſue recte. Quero reliquū terminū eius arcus. Declinationē ꝑuncti dati eſt 5. 11. m. 30. Cuiꝫ cōplementū 5. 78. m. 30. cū cōplemento maxime declinationis ſolaris 5. 66. m. 30. areatim in tabulā traductū mibi ꝑbet numerꝫ ille 5. 69. m. 22. ſecūdo. 30. cuius cōplementū eſt 5. 20. m. 37. ſecūdo. 30. declinatio videlicet ꝑuncti finalis: qꝫ quidē debet gradibꝫ duobꝫ ⁊ tribꝫ minutꝫ. Arcus igiꝫ eclipſice queſitus illic deſinens cōplectitꝫ gradus. 32. minuta. 37. tantā quoqꝫ aſcenſio eius recta comperitur.

Problema Octauū.

Arcum eclipſice terminans arcum qui aſcenſionem ſuam rectā qꝫ maxime ſupat iuente.

Intra tabulam lateraliter cum duobꝫ numeris equalibus ſorte incidentibus. ſi in angulo cōmūni offēdes cōplementū maxime declinationis ſolaris bene eſt. Sin alium quemuis numerū in angulo cōmūni reperias: cum aliis item equalibus numeris tabulam lateraliter ingredere: exiꝑtiedo numerū anguli cōmūnis. Hoc opus toties itera: aſſumptis ſempꝫ nouis numeris equalibus: donec in angulo cōmūni offēdes tale cōplementum maxime declinationis ſolaris: ſi fieri poſſet. Nam ſi nuſquaꝫ reperiri poſſet: tale opus iterandū eſt: donec in angulo cōmūni offēdes numerū ꝑiorimo minorem cōplemento maxime declinationis ſolaris: iteqꝫ ꝑiorimo maiorē. Horum numerorum differentiā notat: quoniā iꝑſa debet vni gradui. Similiter differentiā numeri minoris et cōplementi maxime declinationis ſolaris obſerua. quā deinde multiplica ꝑ ſexaginta minutias: et productū diuide ꝑ differentiā maiorē vni gradui atinentē: quemadmodū in aliis ſimilibꝫ calculis fieri ſolet. numerus enī quotiens ꝑbebit minutias adiuſendas alteri duorꝫ numerorꝫ equali: cum quibus diuiſiū numerū ꝑiorimo minorē cōplemento maxime declinationis ſolaris. Et tali adiūctione naſcetur cōplementum declinationis que debet ꝑuncto ꝑoſſito. vnde ⁊ eius declinatio innoteſcet. ex qua demū ſi tertiuꝫ problema conſulueris: ꝑunctū iꝑſum agnoſceſ. Ceterū ꝑ ꝑa

Si tñ in fronte q̄ in latere tabule acceperō gradus 73. f angulo cōmuni habebō g. 66. m. 8. f. a. 15. Si aut. 74. gradus gemiatos hoc pacto laterāliter in tabulam misero offeret numer⁹ ille g. 67. m. 31. scđū. 18. Cuius 7 precedētis numeri per tabulam elicti differētia est gra. 1. m. 23. scđū. 3. q̄ spectat ad vñi gradū. Item cōplēmentū marīne declinationis solaris superat minorem dictorū numerorū bā differētiola. m. 21. scđū. 45. quam si extēdero per sexaginta minutias 7 inde natū partiar per g. 1. m. 23. fa. 3. congregabo in numero quotiens g. 15. m. 43. quas minutias adiungo minori numero introituāli: qui est g. 73. vñi concretat numerus ille g. 73. m. 15. scđū. 43. qui est cōplēmentū declinationis pūcti questū. Unde ipsa declinatio emergit g. 16. m. 44. scđū. 17. que quidē debet gradibus. 16. 7 minutis primis. 14. tauri 7 triginta ferme secundis. Punctus igit hunc egyptice arcum terminans batenus querebat. Nam si rite numeraveris ascensionem eius rectam: offēdens g. 43. m. 45. fa. 30. que vna cum ipso arcu egyptice quadrante circuli complectitur. Quod quidē nō fortuito cūmit: verū demonstratione certa roboratur: quam Alencianus in quinto problemate tertii de spheris explanauit. Quātus aut sit huiusmodi excessus: quo abundat arcus egyptice memoratus vltra ascensionē suam rectā: bānd quaquā ignorabitur propter arcum egyptice iam notificatum. Pari numerationis formula inuestigabis arcum circuli declinis lune: qui arcum egyptice ibi respondentem gemarime superat: assumēdo cōplēmentū marīne latitudinis lunaris id est 85. g. vice cōplēmenti solaris declinationis marīne. Simul etiā excessum huiusmodi explorabis: qui quing⁹ ferme minutias vnius gradus attinēt. Quo deniq; alterum illos fieri necesse est. Aut motū epicycli lunaris in suo circulo declini esse irregularē. Aut calculum veri motus lune nunc quidē deficere a veritate: nunc vō superfluere quing⁹ minut. vñi gradus. Primum horum inconuenientū fugiunt vniuersi astro nom̄i docti: qui inaequalitatem motus lunaris demonstratōibus p̄dictis supputari omnes lineas mediōū motū lune vna cum superficie plana epicycli in ipso circulo declini lune statuant. Secundū vō abscentiū 7 pdigij simile videbit istis superstitiosis numeratorib⁹: qui omnes motus: nō modo lune: verum etiā aliarū stellarū sese ad vñquem inuenire gestūt: 7 falso iactāt. quippe q̄ nisi ad secundas 7 tertias ac vltiores descendant minutias: rudem 7 illuminatū se fecisse computū arbitrantur: ignorantes vñq; fundamenta huiusmodi supputatio num absq; oculo inspectore iaci nequiuisse. qui quēmadmodum in consideratōib⁹ multā fariā falli potest: ita 7 calculo sequaci certitudinis robur plerūq; adimit.

Problema Nonū.

Hæta congerie ex arcu egyptice et ascensione sua recta: vtrūq; arcū discernere. C Ex precedētī elictas marīnā differētiā arcus egyptice 7 ascensionis sue recte. quā laterāliter tabule inferas cum proposita cōgerie. habebis enim in angulo cōmuni 7 inferētiā qua arcus egyptice questus suam credit ascensionē rectam. cum itaq; et data congerie autem reliqui dimidiū notū cabit ascensionē questā. Cui si ipsam deinceps adieceris differētiā: concretet arcus egyptice questus. C In exemplo datur mihi summa viginti gradū: quā cōficit arcus quāpiam egyptice punctus ascensionis sue recte.

Ad arimā itaq; differētiā que inter arcū egyptice 7 ascensionē suā rectā cadere potest reperio g. 2. m. 29. quā laterāliter mitto in tabulā cū. 20. gradib⁹ 7 colligo in area tabule g. 0. m. 51. ferme: id est differētiā propositi arcus egyptice 7 sue ascensionis recte. Quam demo et data cōgerie. 20. gradū. 7 relinquit numerus ille g. 19. m. 9. Cuius dimidiū g. 9. m. 34. scđū. 30. offēdit ascensionē rectam. Et ascensionī superaddo memoratā differētiā: et p̄fēcit arcus egyptice questus g. 19. m. 25. scđū. 30.

Problema Decimū.

Amplitudine ortuā cuiuscūq; pūcti egyptice ab eq̄tore declināz in oī horizonte cōputare. C Quod de punctis egyptice docebit⁹: ad oīa quocūq; alia pūcta celi in quacūq; regione oriri solita poteris accomodare modo declinationes eorū cognite sint. Intra igit tabulam arcam cū cōplēmentō altitudinis polaris in tua regione 7 declinatione pūcti propositi. reperies enī in latere descēdētī tabule amplitudinē ortus quā querebas. meridianā quidē si pūctus datus ab equatore ad austrā celi regionē declinē. septētrionariā autē si ad aquilonē vergat. Nolum p̄fēcto te ignorare: q̄ cōplēmentū occasus cuiuscūq; puncti celestis equat amplitudinē ortus sui: 7 ad eandem horizonis partem ad quā ipsa amplitudo ortus perpendi debet. Amplitudinē autē ortus (si forte oblitus es) voco arcū horizonis circulo quicūq; etiali ac puncto orientē interclusum. Similiter amplitudo occasus est portio horizonis que inter equatōre ac punctum occidentē clauditur. C Jam exemplari numero rem plantus accipies. Volo scire quantam ortus amplitudinē habeat fides quinde cimi gradus arctis in regiōe latitudinē 48. g. obtinēte. Declinatio pūcti dātī est g. 5. m. 55. scđū. 25. Cōplēmentū autē altitudinis polaris siue latitudinis regionis est g. 42. m. 0. Cum quo quidē cōplēmentō 7 declinatione memorata arcam ingredietī mihi fm̄ p̄ceptū offeret amplitudo ortus questita octo gradū 7 52. minuto: 7 septētrionaria quidē: q̄ punctus egyptice datus partem signiferi borealem possideat.

Problema Undecimū.

Hæta amplitudine ortus supposita punctū egyptice cui ipsa debetur agnoscere. C Intra laterāliter cum cōplēmento altitudinis polaris 7 ipsa ortus amplitudine. angulus enī cōmunis declinationē puncti questī mani festabit. Unde 7 per tertium problema puncti ipsius deprehendēdi dabitur potestas. Admissis tamē oportebit duob⁹ egyptice punctis in eodē parallelo existentibus eandem esse p̄ortus ordinam amplitudinē. scitū etiam vniuersis punctis oriri solitis: equalēq; habentibus declinationes: ortus amplitudines debent cōfēles: quīs nonnunq; aliter atq; aliter denominant. Quere puncto egyptice inuestigando p̄rebit iter. Si enī amplitudo ortus meridianā fuerit: punctū quocūq; egyptice cui ipsa respōdet: in parte meridianā reperiri necesse est. Amplitudo autē ortus septētrionaria pūcto egypti

ce boreali in se tribuatur. In horizonte autē recto sicut neiter poloꝝ eluatur ita amplitudo ortus cuiuslibet puncti a sua non differt declinatione. Sed vide nequā d illud aris a quopiam infideliore proponēti amplitudine ortus nulli puncto eclipſice accidētē verū cūda aliꝝ puncto celi signoz semita deſerenti. Tali aut ludibrio pꝛecorſi: si per amplitudinē ortus data veluti paulo ante monimus declinatio innotuerit. Ea cui si maximā solis obliquationē transgredia: nullus eclipſice punctus datam ortus amplitudinē suscipiet. Si vō memoratam solis maximā declinatio nō superauerit: est inuenire punctum eclipſice iuxta traditionē superiorē cui talis debetur ortuam amplitudo. C In exemplo res apparebit facilior. Sit amplitudo ortus propoſita. 21. gradū 7. 31. minutoz: seruata superiorē regionis latitudine. Intra bo tabulam lateraliter dicta ortus amplitudinē 7 completō latitudinis regionis id est 42. gradibꝝ. inuenias declinationē gra. 14. m. 12. ſecū. 23. Cui deinceps punctū eclipſice reſpōdens per tertium problema eliciam. Illud aut prope erit aut finis octauū gradus tauri: aut vigesimū ſecū. leonis: aut octauū gradus ſcopꝝ: aut vigesimū ſecū. aquarij. Pꝛecognita igitur quartā eclipſice punctū datum continente: quā rem cobere oportet ſuppoſitioni problematis: nihil eſt quod impꝛeſentiarū e latere poterit. Ceterum si ex amplitudinē ortus data latitudinē regionis elicere velis: ne propoſitū 7 paulo pꝛioris problema fiat: cognita declinatione ad eam amplitudinē ſpectante intrabitis aream cum ipſa amplitudinē ortus ac memorata declinatione. nam quod in latere deſcēdit ut aſolet coligetur: ex quadra circuli ablatū relinquet latitudinē regionis queſitam. Cuius rei exemplarem calculum ad necere ſuperuacaneū videtur: cum nihil pꝛioris difficultatis pꝛeter alia diuileſcedi propoſita contineat.

Problemata. Duodecimū.

In omni regione arcum diurnū puncti eclipſice quocūqꝫ dederis numerare. C Intra aream cum duobus complementis: declinationis videlicet ipſiꝝ puncti et amplitudinis eius ortus. habebis enī in latere tabule deſcēdenti arcum ſemidiurnū queſitum: ſi punctus ille dimidiam eclipſicam meridianā poſſideat. Si aut in ſeptentrionaria fuerit: arcum hoc pacto eliciat ex ſemicircumferētia minuz. reliquū enī magnitudinē arcus ſemidiurni reſpꝛeſentabit. Quod enī arcu ſemidiurni non duplicato diurnū arcum totū agnoſces. Quod aut duo capta arietis 7 libꝛe in omni regione pꝛetꝛas ſub polis arcus diurnos habent ſemicirculares: nemiñe ignota re arbitramur. quare per tabulam hac illud inueſtigari nō oportebit. Hoc quoqꝫ non eſt obliuio pꝛetereundum: qꝫ differētia arcus ſemidiurni cuiusqꝫ puncto eclipſice reſpōdētis 7 ſemidiurni equinoctialis: qui ſcilicet nonaginta gradus cōplectit: ſemper eſt equalis imo eadem differētia aſcenſionalis ad idem punctum attinet. Vocatur aut differētia aſcenſionalis arcus equatoꝝis quod differunt duo aſcenſiones: recta videlicet 7 obliqua eadem puncto eclipſice ſeruentes. C Pꝛedictozū exempli ſupputatio talis eſto. In latitudine 48. graduum queratur arcus ſemidiurnus ad finem quintidēci gradus arietis. Cuiꝝ declinatio eſt 5. m. 35. ſecū. 25. Cuiꝝ declinationis cōplementū eſt gra. 84. m. 4. ſecū. 35. In recto numeri arcus in latere deſcēdenti differētiā

m. 52. Cuius cōplementū gra. 81. m. 8. De cūdo cōplementa mitto aream in tabulam: colligo ſin pꝛeceptū generale arcum gr. 83. m. 24. Quem deinceps minuz elidimio circulo: quoniam punctus datus in parte boreali eſt. relinquiturꝫ arcus ſemidiurnus gra. 56. m. 36. Quo duplicato cōcreſcit arcus diurnus gra. 193. m. 12. Inuiſcemodi autē arcus primū per tabulam exceptus eſt ſemidiurnus ad quintidēci gradū libꝛe ac quintidēci cūm piſcium. quoniam illi duo gradus dimidia eclipſicā meridianā poſſident. Ipſetꝛa ſi eundem arcum e nonaginta gradibus abſtulerō: relinquet differētia aſcenſionis gr. 2. m. 36. quintidēci gradū arietis attineſ. Que etiā eſt differētia aſcenſionalis ad reliqua tria puncta ſpectas: quoz vñquodqꝫ quidēcum gradibus ab altera ſectionē eclipſice 7 equatoꝝ. remouet. Cuiꝫ aut in hoc problemate de punctis eclipſice pꝛecipitur: aliꝝ quoqꝫ celi punctis vñuerſiꝝ ſtellis orientibꝝ 7 occidentibꝝ adaptare licebit: modo declinationes eoz pꝛeſcā. quoniam ne minima quidē in ſilo ſupputatiōis diuerſitas inueniatur.

Problemata. xiiij.

Nod pꝛecedēs de punctis eclipſice pollicet alia ratione ſcrutari. C Inueniēdus primū eſt arcus ſemidiurnus minimus: initio videlicet capicorū reſpōdens ex pꝛecedenti. Iſo omni ex quadrante id eſt ſemidiurno equinoctiali de mēdus eſt: ut babeat eoz differētia. Que quidē differētia ceteris eclipſice punctis omnibus in tra regione ſeruet hoc pacto. Intra latera liter cum aſcenſione recta arcus eclipſice inter punctū propoſitū 7 pꝛoximū ei punctum equinoctiale compꝛeſent: cum predictaꝫ differētia ſemidiurni minimi 7 ſemidiurni equinoctialis. angulus enī cōmūis pꝛeſentabit differētiā ſemidiurni queſitū 7 ſemidiurni equinoctialis. Quam differētiā ex quadra circuli tollas: ſi punctus datus in dimidia eclipſica auſtrina fuerit. aut eidem ſuperaddas: ſi partem eclipſice aquiloniā poſſideat. ſic enī arcus pꝛodibit ſemidiurnus. Quē duplicatam pro arcu ipſo diurno tenebis. Ex arcu autē diurno tempus quoqꝫ diurnū addiſces: ſi pro quindenis gradibꝝ more peruulgato horas ſingulas equals numerabis. Hinc et arcum nocturnū 7 tempus ipſum nocturnū facile cōcludes. Quod ſi arcū ſemidiurnū in ſec equas partes diſtribueris: quantitatē hore inequalis diurne videbis. Quā ex triginta deinceps gradibus ablata: partes hore nocturne remanebunt. Idipſum effices: ſi differētiā ſemidiurni tui 7 ſemidiurni equinoctialis in ſec equas portiones ſecueris: 7 vnam earum a quindenim gradibꝝ dempſeris pro auſtrino eclipſice ſemicirculo. aut eſſe adduxeris pro reliquo ſemicirculo boreali. Inueniunt autē quemlibet gradū 7 minutꝫ per ſenariū diuidere poteris breuiter hoc modo. Multiplica ipſum per decē minuta: id eſt pꝛopone ſingulis numeris cifras ſingulas. Ceterum et gradibus minutis primas: et minutis primis ſecundas: et ita ex ceteris ceteras ſuo ordine naſci oportebit. Redintegratis igitur ut aſſolet fractionibꝝ habebis ſummā multiplicatiōis quam pꝛetabas. Ipſoꝝ ro in regione cui polus quinqꝫ 7 quadraginta gradibꝝ ſupra horizontē extollitur: differētiā ſemidiurni cuiuslibet ac ſemidiurni equinoctialis celerius inuenies: ſi in tabris tabulam aream cum declinatione puncti propoſiti 7 completō eiusdē declinationis. habebis enī e d recto numeri arcus in latere deſcēdenti differētiā

questam. Cum qua deinceps vt antea procedendū erit.
 Cūc rei exemplum tale accomodabis. Scire volo dif-
 ferentiam ascensionalem ad. 12. gradus geminorū in re-
 gione badente latitudine. 48. graduū. Inuenio prius ar-
 cum semidurnū minimū ex precedenti gr. 61. m. 7. Quo
 dumpto ex nonaginta gradibus relinquunt gr. 28. m. 53.
 et tāta est differentia semidurnū equinoctialis et semidur-
 ni minimi. id est differentia ascensionalis maxima ad ecy-
 pticam spectans. Eam itaqz cum gr. 70. m. 29. ascensione
 scilicet recta duodecimi gradus geminorū mitto lateraliter
 in tabulam: et eripio differentia ascensionalem gr. 27.
 m. 5. Que adiecta gradibus nonaginta: arcum semidur-
 num questum confabit gra. 117. m. 5. Cūc ad latitu-
 dinem. 45. graduum numerabo differentiam ascensiona-
 lem viginti gradibus tantū debitam (cetera enim que in
 medio tradita sunt exemplari supputatione non egent)
 Declinatio puncti claudētis viginti tauri gradum est
 gr. 17. m. 47. secūdo. 2. cuius complementū gr. 72. m. 12. secūdo. 51
 Illius itaqz duobus numeris arcum in tabulam missis
 elicio differentia ascensionale questā gra. 18. m. 43. Qua
 deinceps vti poterō ad noticiā arcus semidurnū quan-
 titatēqz boze tēporalis: quēadmodū antea monitū est.

Problema xiii.

Si diē lōgissimā in regiōe q̄piā
 cognoueris: quo pacto latitu-
 dinem eius inuenias edocere.

Cūod per longissimā pollicemur diem pa-
 ri ratione per breuissimā efficiem: cum in hoc opere dif-
 ferentia dici equinoctialis et dici longissime rem ipsam
 plerūqz absoluat. Quantū autē equinoctialis dies vincit
 ur a die solstitiali: tantū et ipsa lucem vincit brumalem.
 Mutuēmodi itaqz dici equinoctialis et dici longissimi
 differentiam dimidiatā in arcum paralleli sibi debitū cō-
 uerte: singulis bozis equalibus quādeno ea vt affolet tri-
 buēdo gradus. Eorū deinde graduū complementum
 cum completēto maxime obliuationis solaris latera-
 liter in tabulam ducito. nam quod in area coaradetur/ ex
 quadrāte sumotū relinquet amplitudinē ortus solstitialis
 aut brumalis. Que rursus cum maxima solis declina-
 tionē in tabulam areatim missa/ excutabit in latere descē-
 denti inclinationē circuli equinoctialis ad horisontē re-
 gionis tūc. Eam itaqz aufer ex nonaginta gradibz/ vt re-
 maneat latitudo regionis questita. Et si lōgissimū dici cu-
 tusqz data fuerit/ sole a quattuor cardinibus remotoz
 baud difficilis perdisces elevationem poli vrinā: si nō
 quidē maxima obliuationē: sed quantā sol ex situ suo
 nanciscit in vsu accipies. Cūc prius autē precepti tenor
 numerorū serie declarabit in hunc modū. Offerat mibi
 quispiā longissime dici spaciū quādecim bozarū equaliū:
 poscatqz sibi reddi latitudinē regionis/ vbi tāta dies ac-
 cidit. Dies positus superat diem equinoctialem tribus
 bozis q̄libz. Quarū dimidio id est vni boze cū triginta
 minutis debet arcus paralleli gr. 22. m. 10. Eius itaqz cō-
 plementū gr. 67. m. 10. cō complemento maxime declinatio
 nis solaris gra. 66. m. 30. lateraliter in tabulam ducendo
 eripio gr. 57. m. 54. Cuius arcus complementū gr. 32. m. 6
 declarat amplitudinē ortus solstitialis. Quam rursus ex
 maxima declinatione solarī areatim in tabulā mittē
 et mibi offertur eleuatio equinoctialis circuli gr. 48. m. 38.
 Et deinceps ex nonaginta gradibz/ ablata relinquīs lati-
 tudinem regionis questitam gra. 41. m. 22.

Problema xv.

Libet arcus eclyptice a se-
 ctione vernali incipietis ascē-
 sionem obliquam in regione

quacūqz dimetiri. Cūc animaduertit
 etum terminale bulissemus arcus. quod si fuerit cōmu-
 ne equatori et eclyptice/ necesse est arcum eclyptice fuisse
 semicircū cūferentiam/ et ascendere cum dimidio equino-
 ctiali circulo. Si vō fuerit aliud quodcūqz/ reperienda
 est differentia ascensionalis tali puncto debita/ ex altero
 superior problematū. Quam differentia deinceps et ascen-
 sione recta propoliti arcus: si punctū eius terminale in
 dimidia eclyptica bozeali reperitū fuerit. Aut eidē addū-
 ge/ si in parte austrina extiterit. Habebis enī siue ex sub-
 tractione reliquā: siue ex additione cōfessionē ascensionem
 obliquā arcus tui. Id poteris itaqz si libet in quacūqz re-
 gione tabulam ascensionū obliuarū iteqz tabulam par-
 tium bozarum temporalū/ et demū tabulam equandā
 domorū fm modū vulgatū de nouo cōdere: mli ingenio
 penitus rudi fueris. Et si arcus eclyptice non a sectione
 vernali sed aliunde famētis initium ascensionē obliquā
 addiscere velis: cum ipse sit differentia duozū arcuum a
 sectione inchoatoz: si vtriusqz eozū ascensionē obliquā
 modo predicto didiceris: alterāqz ex altera dempseris:
 quod relinquet ascensionē obliquā notificabit questita.
 Cūc Exempli grā. Volo computare ascensionē obliquā ad
 duodecimū gradum geminorū in latitudine. 48. graduū.
 Ascēso eius recta a sectione vernali initū fumes habet
 gr. 70. m. 29. Et qua minno differentia ascensionale ei de-
 bitam gra. 27. m. 5. relinquunt gra. 43. m. 24. Tanta itaqz
 enūcio ascensionē obliquā arcui propolito respondentē
 Tandem quoqz differentia ascensionalem si adiunxero
 ascensionē recte duodecimi gradus agittari: que est gr.
 250. m. 29. conuertet ascēso obliq̄ eidem gr. 277. m. 34.
 In hunc itaqz modū poteris componere tabulas ascen-
 sionū obliuarū ad quacūqz datas latitudines. Necqz
 multis verbis hic opus efficeo: cum res ipsa sit facilis
 admodū/ cognitio modo predictis ascensionalibus ad
 vniū quadrantis eclyptice spectantibus. nam ille ceteris
 quoqz quartis accomodabunt: quēadmodū in abbre-
 uiato almagesti tradidimus.

Problema xvi.

In omni regiōe ex data ascen-
 sione obliqua ab altera sectio-
 num inchoata arcum eclypti-
 ce sibi debitum inuestigare.

Cūc habes tabulam ascensionū obliuarū ad eam regio-
 nem quam assumis/ facile propolitiū absolues. Si autē
 tabula breuissimi admodū te non est: neqz nouam fabrica-
 ri inuat: hoc pacto procede. Ascensionē obliquā propo-
 sitam perinde quasi rectam constitue: et arcum eclyptice
 ei debitum ex anteceditis aut aliunde discas. Hoc tamē
 attēto: qz ab eadem sectione/ vernali scilicet vel autumnā
 li vtręqz ascensionis exordii fumant. Id puncti etiam ter-
 minatū hunc arcum eclyptice declinationē addisce. Idē

puncti cuiusmodi distans a prima sibi sectione/arcus equatoris et in sphaera recta coascendens consideranda. Et illis itaq; duob; arcub; intra tabula areatim: 7. numeru reperit in latere serua si punctus terminalis predictus fuerit in medietate ecliptice descendenti: que videlicet a cancro incipiens ad capricornu per libram tendendo definit. Aut numeru reperit et semicirculo minue si fuerit in reliqua ecliptice medietate. Quodq; hac via offendens inuentum primi vocabis. Deinde intra tabula lateraliter cum altitudine poli 7 declinatione puncti terminalis superius memorati. quodq; in angulo comuni occurret inuentu secundu appelletur. Postea intra tabulam areatim cum complemento buius inuenti secundi et complemento altitudinis poli. quodq; in latere descendenti colliges inuentu tertium vocabis. Quod ubi erit inuentu primo abstraheris cum residuo 7 complemento inuenti secundi tabulam lateraliter ingredere. quodq; reperies in angulo comuni demere nonaginta gradib; Cum reliquo aut 7 ipso inuentu secundo intra tabulam areatim: arcusq; in latere descendenti oblatum illi arcui ecliptice quem in principio buius operis per ascensionem polu tangit rectam eliciunt apponas si punctus terminalis predictus in dimidia ecliptica ascendenti fuerit. aut ab eodem subtrahes si in reliqua id est descendenti erit. Iterum ab eis siue p additione siue p subtractione sicuti res ipsa fortis quem querebas arcum ecliptice. Opus istud reuera pulchru est 7 huius prolium. Multo tamen polioris esset in vniuo quopiam casu tabula non uam acensionu obliquaru componere: vt per eam ascensionu oblique date arcu ecliptice debitum possem; agnosceret. Illud aut aduertendum: operatione buiusmodi scribere dimittas regionib; quaru latitudines maximam solis declinatione transcendunt. In ceteris eni habitatoribus alijs quibulda cautius opus est. quas impresentiarum silentio pterire decreuimus: cum perraro in vsum veniant. Et si veniant et secundo abbreviati nostri viro docto satis patebit. Cui libet videre creptu predictos accipere tale. Datur mihi ascensio obliqua gra. 232. mi. 38. cui quantus ecliptice arcus coascendat in regione habente latitudinem 48. graduu sit explorandum. Idue ascensionu tangit recte constituit respondet quintus 7 viginti scorpi gradus. cuius finis a sectione autumnali distat 55. gradibus. Qui quide 55. gradus eleuantur in sphaera recta cum gra. 52. mi. 38. equatoris. Adit igit gra. 55. 7 gra. 52. mi. 38. areatim in tabulam. numeruq; fin tenore precepti elicio gra. 76. mi. o. quem voco inuentu primum: quonia punctus ecliptice claudens viginti quintu scorpi graduu est in dimidia ecliptica descendenti. Deinde intra lateraliter cum altitudine poli gra. 48. 7 declinatione predicti puncti ecliptice: que est gra. 19. mi. 3. secundu. 54. 7 elicio inuentum secundu gra. 14. mi. 3. buius inuenti secundi complementum est 75. mi. 57. cum quo 7 complemento altitudinis poli id est 67. 42. intra tabulam areatim: numeruq; gra. 43. mi. 37. hac via occurrente vocabo inuentu tertiu. Quo dempto erit inuentu primo relinquatur numerus gra. 32. mi. 23. que cum complemento inuenti secundi si lateraliter tabule inmisero reperiam vt affolet gra. 31. mi. 8. Hunc numerum ex nonaginta aufero 7 restant gra. 58. mi. 42. Quem residuu numerum cum ipso inuentu secundo areatim tabule ingero: reperioq; arcum gra. 16. mi. 30. cum minuo ex 25. gradibus scorpi 7 relinquunt gra. 38. mi. 30. et id est signu: quod videlicet ascensio obliqua propolita respondet. Talis est operatio ad quodcuq; punctu signatu in quarta ecliptice autumnali: que videlicet ab initio libere vsq; ad caput capricorni potest ducere. De punctis aut reliquaru trium quartaru et si paulo alteri agendum est: id tamen non nisi in additionibus 7 subtractionibus nu-

meroru quemadmodu precepit enenire solet. Quam obrem alia noua exemplari supputatione opus esse no arbitror.

Problema xvij.

Altitudinem solis supra horis 30 rem existens in omni regione omniq; hora perpendere.

Ad hoc propositu vtetur distantia solis a meridiano. Que aut erit quadrans ad vngue: cui debetur sex bore equalis. aut maior eo: aut minor. Si distantia a meridiano fuerit quadra circuli: intra lateraliter cu elevatione poli 7 declinatione solis. videbis qui in angulo comuni altitudinē solis quesita. Si aut memorata distantia quadrante superauerit: eam ex dimidio circulo minue: cum residuo 7 complemento altitudinis poli intra tabulam lateraliter. Quod aut in angulo comuni offendes: ex quadrante aufer: 7 residuu vocabis inuentu primum. Cu quo demu inuentu primo ac altitudinem regionis intra tabulam areatim: 7 ex eo quod in latere descendenti occurret complemento declinationis solari: abijce reliquuq; inuentu secundu vocato. Cum duobus itaq; inuentis primo scilicet 7 secundo tabulam ingredere lateraliter. reperies enim in angulo comuni altitudinē solis quesitam. De si distantia solis a meridiano minor quadrante erit: intra cum ea 7 complemento altitudinis poli lateraliter. quodq; in angulo comuni accipies: ex quadra circuli minue. residuuq; vt antebac inuentu primum nuncupabis. Quod deinde inuentu cum altitudine poli areatim tabule imittas. 7 complemento eius quod in latere descendenti occurret adde solis declinationem si borealis fuerit. aut a dicto complemento minue declinationem solis si fuerit meridiana. vel tale complementu sceolum serua si declinatione solis ipe careat. Quodq; aliquo horu trium modoru vti res erigit offerretur: non fuerit minus quadrante: aut residuu eius de semicirculo si quadrante superauerit: inuentu secundu nuncupabis. Idcirco duo inuenta si lateraliter tabule inmiseres: erit pices in angulo comuni altitudinē solis quesita. Verum quando inuentu secundu nonaginta precise gradus complectitur: inuentu primum pro altitudine solis tenedu est. Facilius aut multo propositu crequeris sole equinoctialem circulum possidere. Intra bis eni lateraliter cu duobus complementis: distantie videlicet a meridie 7 altitudinis poli. Quod eni in angulo comuni colliges: pro altitudine quesita accipies. Hoc spectabile preceptum si recte consideres: non paru (nisi ne falli animus) admiraberis. Eo naq; ministro in omni regione tabulam altitudinis solis ad omnes horas conscribere poteris: siue a meridiano siue ab horizonte horaru computatione feceris. A meridiano aut numerado horas expeditior erit compositio. nam primum inuentu ad vnā eandē horam non variabitur: quis loca solis diuersa: atq; idcirco varias pleruq; eius declinationes esse cotingat. Similiter principiu secudu inuentu ad eandem horam stabile permanebit. Idcirco si condere libet tabulam altitudinis solaris ad horas ab horizonte numerandas: Assumpta distantia quacuq; ab horizonte oportebit simul fieri arcum semidiurnu aut seminocturnu: vt inde agnoscat distantia solis a meridiano. que in presenti negotio semper cognita est necessaria. Quicquid autē de sole monuimus: alijs quoq; stellis ac punctis celi quibulibet accommodare licebit: modo cognitas habent declinationes. Cui exemplo sic accipe. Sit sol in principio geminor distans

a meridiano .90. gradib⁹ paralleli sui. quib⁹ de tpe respō
dent fer bore eqles. Volo ingre⁹ altitudinē eius supra
boz⁹ dñe cui polus est ollif. 48. gradib⁹. Declinatio sol
est g. 20. m. 12. secundū .6. cū q⁹ altitudine poli memorata
later aliter intro tabulā: inuenio q⁹ arcū g. 14. m. 52. quē
dico esse altitudinē solis quēstā. Cuius est solis di
stantia a meridiano .105. gradū. quib⁹ septē bore eqles
debent. Subtraho .105. ex .180. relinquitur .75. cū quib⁹
cōplēto latitudinis regionis solis fecit g. 42. intro tabu
lam later aliter: 7 in angulo cōmuni eribent mibi g. 40.
m. 15. fa. 56. q⁹ minuo ex .90. relictū autē id est g. 49. m. 44.
fa. 4. vocabo inuentū primū. Quod deinceps cū latitu
dine regionis g. 48. areatim mitto in tabulā. ex numero q⁹
elicto les g. 77. m. 2. de mo cōplēmentū declinatōis sola
ris id est g. 59. m. 48. residuū autē g. 7. m. 14. voco inuentū
secundū. Cū duob⁹ itaq⁹ inuentis primo fecit et secūdo
ingredio: tabulā later aliter: 7 in preceptū generale in
uenio g. 5. m. 31. altitudinē sol quēstā. Cuiam demū sol
babet distantia a meridiano .60. gradū. quib⁹ debent
q̄ntu⁹ bore eqles. Quero eleuatiōē eius supra boz⁹ dñe
re. Intrādo igit tabulā later aliter cū .60. gradib⁹ distan
tia a meridiano: 7. 42. gradib⁹ cōplēmentū altitudinis poli
in angulo cōis p̄cedet g. 35. m. 24. fa. 51. hūc⁹ arcus cō
plēmentū est g. 54. m. 35. secūdo .9. inuentū fecit primū.
Quod deinde inuentū cū altitudine poli g. 48. areatim ta
bulā limitēdo colligo g. 65. m. 47. Cuius arcus cōplēmen
tū est g. 24. m. 13. hūc addo declinatōē solis: quonā
septentrionalis est g. 20. m. 12. 7 resultat inuentū secundū
g. 44. m. 25. Illis ergo duob⁹ inue⁹ later aliter in tabulā
missis elicio altitudinē sol quēstā g. 44. m. 45. Cū amplē sol
in eq̄toze situtur babet distantia a meridiano .75. gra
dū: quib⁹ debent quib⁹ bore eqles. Volo querere alti
tudinē eius supra boz⁹ dñe p̄memoratū. quod mox ef
ficiā vbi cōplēmentū latitudinis regionis g. 42. cū cōplē
mentū distantie a meridiano fecit g. 15. later aliter tabu
le inuēro. nam in angulo cōmuni offeret altitudo solis
quēstā nomen gradū. m. 58.

Boze ab equinoctiis	Distātia Solis a meridie.	
	Gr̄a. Min.	
24	113	o
23	98	o
22	83	o
21	68	o
20	53	o
19	38	o
18	23	o
17	8	o
16	7	o
15	22	o
14	37	o
13	52	o
12	67	o
11	82	o
10	97	o
9	112	o
8	127	o

ria solis a meridiano orientalis ad finē sextedecime bore
fecit .7. gradū. Deinde p̄ additionē cōtinuā quindeno
rū gradū p̄ceant singule distantie a meridiano ad fi
nes reliquarū boz⁹ p̄ ordinē cōmodū in margine
propinquo pendere potes. Cūq⁹ aliter (supposi
to eodem arcu semidurno) p̄ subtractionē cōtinuā quin
denorū gradū habeo distantias solis a meridie ad fi

nes bozarum ab ortu solari computatari. Verū nume
rus qui antebac bore vigesimē tertie tribuebat: iam ad
bozam primā p̄spectabit. Et qui tunc bore vigesimē
de nūc bore secundē. Atq⁹ ita de ceteris suo ordine: bo
necc ad bozā septimā veniet. Cui quidē respōdebit distā
tia sol a meridiano orientalis .8. gradū. Cui decepti ex
15. gradib⁹ id est spacio bo
rario relinquit septē grad⁹
fecit distantia solis a meri
diano occidentalem ad bozā
octauam. Cui rursus distan
tiae addidero quindenariū
numerū conerescent gra. 22.
pro boza nona. Et ita p̄cedē
do per cōtinuam additiōē
quindeno gradū proce
bo distātiis solis a meridia
no ad reliquas bozas p̄ ordi
nem: donec tandem per bu
suscemodi cōacuationem
colligē numer⁹ equalis ar
cu semidurno aut proximo
maior eo. Quorū vterq⁹ ab
opere p̄nti reſciēdo est: cū
tales distātie nō accidunt so
lari globo nisi aut occidenti
aut iam sub boz⁹ dñe merio.
Hacten⁹ de bozis equalib⁹.
Nunc de temporalibus aut
ineq̄lib⁹ sic agā. Resumptū
arcum semidurnū quo ante
bac vltius sum in ter equas sc̄ndo portuinculas: 7 creat
quantitas bore temporalis gra. 18. m. 50. quā seruo p̄o
distātia solis a meridiano ad bozā quintā. Dupli autē
dicte distantie id est grad. 37. m. 40. pro boza quarta. Tri
plum eius grad. 56. m. 30. ad bozam tertiam. Quadrup
plum fecit grad. 75. m. 10. ad bozam secundā. Quintup
plū aut gra. 94. m. 10. ad bozā primā. Hec sunt bore ante
meridianē. Quarū quēq⁹ cū sua comparī possim meridia
na eq̄le soli tribui altitudinē. Nā sicuti finis bore ferte
solem ab boz⁹ dñe plurimum remouet. ita boza quinta
quidē 7 septima equas solis altitudines eribēt. Quar
tē autē 7 octaua bozarum fines solem inegaliter ab boz
dñe remoueri non sinit. Haud dissimile deniq⁹ pas
sionem soli accidere necesse est ad fines reliquarū bo
rarum parillū. Cognitis ergo distātiis solarib⁹ a me
ridiano (si vestigia supputationis superius expositē se
ctatus fueris) voluntatem tuam pro cūlābio tranquil
lam reddes.

Problema xviii.

Sole in aliquo signorum boze
alium existente altitudine eius
in circulo verticali explotare.

Circulū verticalem diffinimus cum qui per
verticē capitis productus ad oriens equinoctiale atq⁹
occidens vtriq⁹ extenditur. Est autē oriens equinoctiale
vbi horizon 7 equinoctial⁹ circulus coeunt in parte orien
tis. a quo vbi elicit amplitudo ortus numerari solet. Oc
cidens vō equinoctiale per diametrum ei⁹ oppositū. vnde
et amplitudo occasus initium sumit. Intra igit arca
tum cum altitudine poli 7 solis declinatione boreali. Nā
quod ē directo numeri arcus in latere descendenti repe
tietur altitudinē p̄bebit quēstā. Cū exemplariter autē

hic intelliges. Volo scire huiusmodi altitudinem solis i principio geminorum erigentis distantiam 48 graduum. Declination solis est 20. n. 12. cum qua 7 latitudine regionis ingredies tabulam areatim: huiusmodi quod ppter generale altitudinem solis quesitam 27. n. 21.

Problema xix.

Distantiam solis horizontalem a circulo verticali cognoscere.

Huiusmodi distantiam plerique vocant arabico nomine azimuth. Est autem arcus horis inter duas duos circulos magnus p vertice caput: cuius quod alter quidem per orientem equinoctiale et occidentem incidit: quae ante circulum verticale agnominantur. Alter autem globi solare fecit per medium. Nonnulli denique distantiam talem ad meridianum vtrius referunt. Queres propositum nostrum band quaquam interturbabit: cum meridianus circulo verticali ad rectos incidat angulos: idcirco quatuor quadrantes cum eo interceptat de horizonte. Quo fit ut cognita tali remotione solis a circulo verticali distantiam quod ad ipso meridiano non ignoretur. Intra itaque lateraliter cum complemento declinationis solaris 7 distantia eius a meridiano. quodq in angulo cōcurreret seruato. Deinde tabulam areatim ingredere cui eo quod seruasti ad complementum altitudinis solis. quod cum in latere descendenti reperies: et nonaginta gradibus demptis relinquet distantiam horizontalem a circulo verticali quae petebas: meridianam quidem semper diuisum per signa astra deambulabit. borealem autem si in parte signorum aequiloni consistat altitudinem habeat minorem ea quam circulus verticalis solis eribet. Nam si talis altitudo qua vii sumus in opere presentis superaret altitudinem solis in circulo verticali distantia sepe memorata ad huc meridianam denominabit: tamen si semicirculus eclipstis septentrionarius solari lumine illustretur. At si altitudo solis ad opus praesens excreta altitudinem eius in circulo verticali equauerit id est eade fuerit: nulla erit horizontalis distantia a circulo verticali. Altitudinem autem solis in circulo verticali praecedens problema notam reddidit. Ceterum sole equinoctiale possidente circulum: longe facilius huiusmodi comparabimus distantiam. Intra ibimus enim tabulam areatim cum complemento altitudinis solaris 7 distantia a meridiano. quodq in latere descendenti directo numeri arealis reperietur et nonaginta gradibus decessum relinquet distantiam horizontalem quesitam. Quoties autem meridianum ipsum sol occupauerit: arcus talis nonaginta gradibus completetur. Sed memeto distantiam solis a meridiano qua viemur in absolutione problematis non per eclipsticam: verum per equinoctialem aut et equidistantem circuli sumi oportere: eam scilicet quae singulis horis equalibus quindenos tribuit gradus. Postremo quiescat ad solem baten: relata sunt aliis quod stellis ac celi pictis quibuslibet accomodare licebit: modo non ignorent quod ad introitus tabulae sunt necessaria. Ceterum crepusculum sit ut ppter sol in principio geminorum a meridiano remotus ad orientem gradibus sexaginta: qui debentur bovis quattuor equalibus: atq idcirco in latitudine 48 graduum tunc supra horizontem eleuetur gradibus 14. 7 minutis 46. Intro lateraliter cum 69. n. 48. id est complemento declinationis solaris 7. 60. gradibus distantiam a meridiano. numerumque hac via reperit 54. n. 22. cum complemento altitudinis solaris 55. n. 14. et in tabulam mitto: 7 numerum lateris descendentes ut ante occurrente 8. 81.

n. 39. ex quadrante id est nonaginta gradibus minus: ut relinquantur arcus quesitus gra. 8. n. 21.

Problema xx.

Angulum ex coincidentia eclipstis et meridiani qui apud quod libet ipsius eclipstis punctum pronenit inuestigare.

Angulum huiusmodi orientalem et borealem duntaxat inuenire docebitur. Et quo demum reliqui tres: qui iuxta quodam eclipstis punctum constituantur innotescunt. Intra itaque arcum cum complementis duarum declinationum: quarum una est maxima: altera vero debet puncto proposito 7 habebis in latere descendenti angulum quesitum punctum in semicirculo eclipstis ascendenti signatus fuerit. Si autem in semicirculo altero proposito fuerit: cum inuenitur et semicirculi circumferentia minuas: ut relinquantur magnitudo anguli quesiti. Apud puncta vero tropica anguli huiusmodi rectum esse oportet. Sed iuxta vernale punctum angulus ille complemento maxime declinationis solaris equatur. apud autumnale autem et recto 7 angulo maxime declinationis solis respondente constituit. Alter demum problema praesens absolendi dabitur facultas: si intrabis arcum cum distantia puncti dati ab alterutro puncto: equinoctiali: hoc videlicet qui vicinior fuerit: et cum ascensione recta eidem arcui debita. id enim quod in latere descendenti occurrit: aut residuum eius de semicirculo: vti superius cautum est: pro angulo quesito tenebis. Ceterum plerique quero angulum huiusmodi apud finem non gradus tauri constituit. Declinatio memorati puncti est gra. 14. n. 32. cuius complementum gra. 75. n. 28. Declinatio solis maxima est gra. 23. n. 30. cuius complementum gra. 66. n. 30. Hec duo complementa mittendo arcum in tabulam elicio angulum quesitum 7. 71. n. 21. scire. Huiusmodi autem angulus apud principium arietis completitur gra. 66. n. 30. quod quidem numero quadrans circuli superat maxime solis declinationem. Apud cancri autem caput angulus talis habet nonaginta gradus. Et iuxta initium librae gra. 1. 3. n. 30. quem quidem numerum maxime solis declinatione efficit adiecta quadranti. Quae si cum distantia puncti dati a capite arietis: id est 39. gradibus 7 ascensione recta ei respondente quae est gra. 36. n. 36. arcum tabulam ingredis: huiusmodi fuerit: eundem quem prius angulum meridiani et eclipstis reperiam.

Problema xxi.

Angulum ex cōcursu eclipstis et horizontis praecari indagare.

Intra arcum cum complemento declinationis puncti proposito 7 elevatione poli borealis in tua regione habebis enim in latere de descendenti numerum quandam: qui vbi et angulo meridiani et eclipstis apud punctum propositum erit: relictus fuerit: quantitas anguli quesiti relinquet. Apud sectionem autem vernalem si maxime solis declinationem et complemento altitudinis poli dempseris: aut eide adiunxeris apud punctum autumnale: magnitudinem anguli quesiti apud illud punctum aucupaberis. Hec quidem referenda sunt

ad partem horizontis orientalem, nam in horizonte occidit huiusmodi angulus inuestigari libeat, presciendum est: si duo tales anguli apud puncta eclipse per diametrum opposita, puenietur: quod alter quidem in oriente: alter autem in occidente eodem tempore instanti sunt: duo bus rectis equipollentes sunt. Quamobrem petiti huiusmodi anguli occidentalem querendus est angulus qui accidit iuxta punctum oppositum in oriente. Is enim sub tractus a duobus rectis id est. 180. gradibus: reliquet angulum questum in occidente. Verum si libeat et hac tabula angulum talem qui in occidente sit addiscere: intra aream cum altitudine poli et complemento declinationis puncti dati, quodque in latere descendente reperies adde angulo meridiani et eclipse apud idem punctum puenietur: ut conerescat huiusmodi angulus questus. Si vero apud punctum equinoctii vernalis quidem poli elevationem in tua regione quadrati adungas: et ex collecto maximam solis declinationem auferas. Apud punctum vero equinoctii autumnalis eandem maximam solis declinationem ipsi collecto adicias: et pueniet angulus quem querebas in occidente. Si poteris denique huiusmodi anguli horizontis et eclipse in oriente puenientem aliter explorare: intrando lateraliter cum complemento altitudinis meridiane medij celi super terram: et angulo quem continet meridians cum ipsa ecliptica apud tale medium celi: si non fuerit maior recto id est nonaginta gradibus. Aut cum eius residuo de semicirculo si rectum superauerit, numerus enim quem dabit, area tabule et quadra circuli demptus reliquet quantitate anguli questi. Cuius negotij exempli accipe. Libeat supputare angulum orientalem huiusmodi apud terminum non gradus tauri acidentem in ea regione vbi polus septentrionarius. 48. gradibus extollitur. Declinatio aequilonia memorati terminus est gra. 14. mi. 32. Cuius complementum gra. 75. mi. 28. Duos itaque numeros gra. 75. mi. 28. et gra. 48. mitto aream in tabulam quemadmodum precipitur, numerumque elicitum gr. 50. mi. 9. demo ex angulo meridiani et eclipse nuper primo inuenio gra. 71. mi. 21. ut reliqua angulus questus gr. 21. mi. 12. Ex. 42. aut gradibus id est complemento elevationis polaris duo tales anguli apud initia arietis et libe nascuntur. Ille quidem vernalis gr. 18. mi. 30. per ademptionem declinationis solaris maxime. Iste aut gr. 65. mi. 30. per adiectionem eiusdem maxime declinationis. Cuius deinceps angulus habet apud nonum scopij gradum occidentem exempli gratia queratur. Angulus prius elicitum gra. 21. mi. 12. qui videlicet ad nonum tauri orientis gradum spectat demo ex. 180. gradibus: quod duo recti anguli complectuntur: et restant gr. 158. mi. 48. Aut numerus ille gr. 50. mi. 9. et tabula per arealem introitu antea ad nonum tauri gradus deproptus: qui ad nonum quoque scopij gradum spectat propter equales hic et ibi declinationes adiungat huius gr. 108. mi. 39. angulo scilicet meridiani et eclipse apud nonum scopij, sic item conflabis gr. 158. mi. 48. magnitudine anguli questi.

Problemata xxiij.

Quantitatem anguli ex eclipse et circulo altitudinis puenientis addiscere.

Ad hoc negotium necessaria est ea distantia puncti dati a meridiano: quo per equinoctialem aut eius quod distantia circuli in quo est punctus datus perpendit pro singulis horis equalibus quindenos accipiendo gra-

dus. Intra itaque lateraliter cum tali distantia puncti dati a meridiano: siue supra terram siue sub terra: ea videlicet distantia que non excedit quadratam circuli: et cum complemento altitudinis poli, quodque in angulo communi occurret cum complemento altitudinis puncti dati aream denno tabule immittas. habebis enim in latere descendente angulum quemdam circulo altitudinis et circulo per polos mundi punctum datum incedente contentum. Eum igitur angulum adiungo angulo meridiani et eclipse apud idem punctum puenientem: si punctus ille de quo agitur ante meridianum situs fuerit, aut minus ab eodem si meridianum transierit, habebis enim vel addendo vel subtrahendo prout res ipsa postulat angulum questum, facilius itaque et bis que commemorauimus tabulas angulorum in omnibus regionibus conficies. Neque oportebit pro vna et eadem distantia a meridiano nisi semel intrare tabulam lateraliter pro primo videlicet puncto: quia complura talia puncta fuerint assignata. De bis tamen particularium tabularum compositionibus ne paulo liberior euagari videamur: sermone finem facimus. Cuius exempli supputationem rem intellectu faciliorem reddemus. In latitudine. 48. gradibus ponatur initium signi geminorum ante meridianum per quattuor horas equales, quibus de equatore aut parallelo debent ferre gradus seraginta. Complementum latitudinis regionis est gra. 42. Elevationis autem principij geminorum supra horizontem est gr. 14. mi. 46. Cuius complementum gra. 55. mi. 14. Duobus itaque numeris gra. 60. et gra. 42. lateraliter in tabula missis eripitur in area vt affolet gr. 35. mi. 25. Quod cum ceptis numeris cum complemento elevationis id est gr. 55. mi. 14. aream in tabulam duco. et iuxta preceptum generale elicio gra. 45. mi. 52. angulum videlicet quem circulus altitudinis et circulus per polos mundi vadens apud punctum datum complectuntur. Hunc itaque angulum adiungo angulo meridiani et eclipse iuxta memoratum punctum, percat: qui per pblema vigesimum habet gradus. 77. mi. 46. vt conficiatur angulus questus gra. 122. mi. 38. quoniam punctus datus in parte orientali positus est. Qui si occidentem versus tenderet: minus oportet ret cum numeris qui iam nunc adiungebatur.

Problemata xxiij.

Ab precedens pollicetur aliter comprehendere.

In hoc ceptis notitia cardinis regis est necessaria. Que cum sit perunquam plurimum: specialiter explanatione hoc in loco non eget. Intra igitur lateraliter cum complemento altitudinis meridiane puncti eclipse qui in medio celi est: et cum angulo quem meridians angulo eclipse et apud idem punctum ambiunt: si non fuerit maior nonaginta gradibus. Nam si maior idem occurreret: dempto ex. 180. gradibus: cum reliquo agendum esset. Quodque in angulo communi offeratur deo debet quantum nonaginta gradus ab ascendente distat a vertice demissionis superioris. Eam itaque distantiam cum complemento altitudinis puncti dati aream in tabulam mittas, quod enim in latere descendente reperies magnitudinem anguli questi manifestabit: si punctus propositus meridianum iam transierit, Nam si nondum meridianum attigit: quod per tabulam elicitum est ex semicirculari numero minuas ut relinquatur angulus quem desiderabas. Adhuc deinceps caute circa negotij presens exponende essent, videlicet dum punctus positionis eclipse orientalis quod in meridianum facit: ad austrum recedit a vertice capitis:

et quando punctum huiusmodi ad aquilonem vergit quid facto opus sit monendum est: nisi ratio operis dissuaderet. Quas quæ et alias insuper additæ alibi satis lucubramur. C. Exemplū pñctor. Sicut ut pñr gemi a meridiano remoti orientis versus punctum horarum ceteros punctos alios angulū a circulo altitudinis et clyptica cooperiebunt. Unde cū celi tunc erit grad. 27. m. 36. piscium. Cuius altitudo meridiana grad. 41. m. 3. Huius altitudinis complementum est grad. 48. m. 57. Huius autem meridiani et clyptice apud tale celi medium per vigesimū huius elicit. g. 66. m. 32. Quæ vna cū elongatione medi celi a vertice capitum: quæ est g. 48. m. 57. mitto lateraliter in tabulam. sic enim excudit remotio nonagesimi a vertice capitū g. 43. m. 46. Quæ altitudo puncti initialis gemitorum est g. 34. m. 46. Cuius complementū g. 55. m. 14. cū remotio nonagesimi a vertice areatim transfero in tabulam: et cū finitraditione g. 57. m. 22. Huius numerum aufero ex 180. gradibus: quoniam punctus datus quadrante clyptice orientalis possidet. relictus ergo numerus g. 122. m. 38. magnitudinem anguli quesiti perueniabit.

Problema xliiij.

Angulum nuperrime tractatū alia ratione sciscitari. C. In pñcedenti medio celi supraterraneo: nūc demū pñcto orientis aut occidit. ut inur. Cū itaq anguli quīstī varia sit magnitudo finitraditionis aut puncti pñcto finitraditionis est punctus clyptice orientalis coīstīstī quo querit angulus et concursus clyptice et circuli altitudinis pñctus. Cuius inuenitōne quoniam pñctū admodū est silentio pñterire consiliū fuit. Intra igit areatim cum distantia puncti dati a puncto orientis aut occidentis: ea videlicet quæ minor: quadrata circuli existit et cum altitudine eiusdem puncti supra horizontē. nam quod in latere descendit occurrit quantitate anguli et clyptica et horizontis pñuocientis indicabit. Hunc ergo angulum et nonaginta gradibus deme. cū reliquo autē et complemento altitudinis puncti dati ingredere tabulam iterum areatim. et quod in latere descendit videbitur. 180. gradibus subtrahas: si punctus datus puncto orientis vicino: fuerit quæ puncto occidentis: reliquū pro quantitate anguli quesiti seruando. Si autē puncto clyptice occidentalis magis appropinquauerit: ipsum inuenitum pro angulo quesito computabis. Id punctus autē datus equaliter ab oriente atq occidentē remotus angulum apud se quæsitum iubet esse rectum. C. Cuius rei tale exemplum est. Sit principium ieiunii geminorum a meridiano remotum orientem versus spacio quattuor horarum equalium id est gradibus. 60. atq igitur habeat altitudinem grad. 34. m. 46. boreoscos igitur habebit grad. 22. m. 11. cancri. cuius et puncti dati intercapedo est grad. 52. m. 11. quam mitto areatim in tabulam cum altitudine memorata puncti dati: et cū finitraditione pñcepti grad. 46. m. 12. magnitudinem scilicet anguli orientalis quæ cooperiendū horizon cum clyptica. Eum demō ex 90. restabit complementum iam dicti anguli grad. 43. m. 48. Est autē complementum altitudinis puncti dati grad. 55. m. 14. Hæc itaq duo complementa areatim tabule illata ex promissū numerū grad. 57. m. 24. quem aufero ex gradibus. 180. et relinquunt gradus. 122. m. 36. tantūq pñuocū quo quæsitum angulum. Huiusmodi autē angulū in pñcedentibus per hunc numerū grad. 122. m. 38. ex pñctis finis maiorē quæ nunc duobus ferme minutis primis Quod equidem non omnino absentancum videri debet

Sum enim multiplices ad hanc rem fiant supputatōes non penitus exacte: sed nunc quidem deficientes: nunc vero cruperantes in secundis minutis: fieri aliqui oportet ut tales minutie et si singularem nullius momenti censcantur: constare tamen aut crebris bine indeq negligēte sensibile quiddam veritati vel adiciant vel adimant Cui rei si pñtorē forsitan velis: curiosior et variis calculo licet: quænamodū in vestibulo huius operis monimus.

Problema xlv.

Babū ascendētē aut pñctū clyptice orientālē in oī regione et oī hora p hāc tabulā inuestigare.

C. Ad hoc propositum visuconiet notitia medi celi et sue altitudinis meridiane. Quæ res quo pacto addiscantur: nemini infiducriter docto ignotum esse arbitramur. Intra igit areatim cum angulo et meridiano et clyptica apud medium celi pñuociente: aut cum residuo eius de 180. gradibus: si angulus ipse recto maior fuerit: et cum complemento altitudinis meridiane eiusdem puncti: quodq in latere descendit: offendens: erit distantia quæ nonagesimus gradus ab ascendente et vertice hemisphæri superioris diiunguntur. Cuius distantie complementum cum altitudine meridiana medi celi areatim rursus in tabulam ducto. quodq in latere descendit occurrit seruato. Id enim et arcu clyptice ad medium celi desinente auferas: si ipsum celi medium in dimidia clyptica ascendente fuerit. et relinquatur arcus clyptice ad occidentem terminatus. quæ cognitio ascendens etiam cum per diametrum et oppositum latens bit. Aut huiusmodi feruoralem medio celi superaddes: si ipsum celi medium in semicirculo clyptice descendente tueri titerit. Talis enim auctina supputatio ad orientalem clyptice sectionem te perducet: quæ quidem ascendens gradus initium proculdubio erit. Id dicto autem foliū initiali aut binuali cardinem regium possidet boreoscos pñonte quasi agnoscendum sese prebet. Cum enim capricornus caput suum in meridiano supra terram deponit: cornua arietis et inferis emergere intelliges. Cætero autem ad cardinem regium anbelant: obclas supra horizontem potendi certum est. C. Quorum omnium exemplaris supputatio adnectenda videtur. 1. onat quispā finem sciti gradus piscium in medio celi: indeq poscat sibi reddi boreoscos in regione habente latitudinem quadragesimo octo graduum. Altitudo meridiana medi celi est grad. 32. m. 40. Cuius complementum grad. 57. m. 20. Angulus meridiani et clyptice apud medium celi est grad. 68. m. 21. quātus et vigesimo huius trahitur. Quæ quidem angulum cum dicto complemento altitudinis meridiane medi celi grad. 57. m. 20. mitto lateraliter in tabulam: et ex promissū finem legem datam grad. 51. m. 29. tantūq est remotio similitatis clyptice a vertice hemisphæri superioris. Huius demq complementum grad. 38. m. 31. vna cū memorata altitudine meridiana medi celi areatim in tabulam transferenti mihi offertur arcus grad. 60. m. 2. Quem demō et arcu ad medium celi desinente: et relinquunt gradus. 5. m. 58. capricorni in cardine occidit. quocirca per diametram et oppositionem inuenio g. 5. m. 58. cancri in ascendente.

Problema xlvj.

¶ Quis ascendente in regione
qualibet habuerit: quo pacto
medium celi inuestiget manu

Ducere. Memini astronomo difficile vide-
ri debet et ascendente dato mediū
celi comprehendere: si tabulam ascensionū obliquarū ad
regionē suam habuerit. Idō autē impiescentiū abscis-
sionū obliquarū ascensionū subtiliter illud
inquiramus hac via. Ex decimo problemate amplitudi-
nem ortuum ascendētis accipiemus: et vigesimopri-
mo angulum qui ab horisone egypticæ ad punctum
orientis continet addisicem. Deinde lateraliter intrabi-
mus tabulam cū dicta amplitudine ortus: prefatisq; an-
guli quātitate: et quod in angulo cōmuni reperitur: ex
quadrante abijciemus. Cum residuo autē et completō
amplitudinis ortus ascendētis areatim rursus tabulam
ingrediemur. quodq; in latere descendētis occurrerit: ex ar-
cu egypticæ ad punctum orientis terminato minuemus
si punctus ipse orientis fuerit in semicirculo egypticæ au-
strino. Alit addemus idipsum arcui egypticæ ad punctū
occidentis terminato si partem egypticæ aequinotia pos-
sident punctū orientis. sicuti habebim arcū egypticæ
cū terminus in meridiano supra terram reperit. Por-
ro sicuti arcus ascendente capricornus regium occupat
cardine: ita initio libe surgente caput cancri in meridia-
no absq; villa sinuosa supputatione inueniet. Id poterit
etiam aliter idem explorari. Ex quōdecimo enī huius
ascensio obliqua arcus egypticæ qui ad punctū orientis
desinit sciet. Deinde igitur quadra circuli et huiusmodi
de ascensione obliqua: relinquatur ascensio recta arcus
egypticæ terminati ad punctum qd in medio celi existit.
Vnde et ipsum celi medium extemplo innotescet. Ceterū
plari autē calculo problema satis illustrabitur. In re-
gione vbi polus borealis. 48. gradibus extollit sit ero-
tus quintidecim: arcus gradus libeatq; per cum in-
quirere medium celi absq; villa ascensionū obliquarū ta-
bula. Ortus autē amplitudo puncti orientis est gra. 8. m. 52.
borealis. Angulus autē arcus et horisone et egypticæ
apud finem quintidecimi gradus arcus p̄ueniens est
gr. 18. m. 53. quem vna cum amplitudine ortus memora-
ta lateraliter mitto in tabulam: colligob arcum grad. 2
m. 51. Cuius deinde complementum grad. 87. m. 9. cum
complemento amplitudinis ortus gra. 81. m. 8. areatim
tabule inferendo elicio gr. 81. m. 35. Idunc numerū addo
arcui egypticæ ad horisontē occidentis desinenti: videlicet
15. gradus libe. Arcus itaq; et huiusmodi additione
cōcrefcens protenditur ad mediū celi quēstus: id est gra-
dus sex 7 minutias. 35. capricorni.

Problema xxvij.

¶ In omni regione elevationem
solis supra horisontē quacūq;
hora data aliter q̄ superius di-
numerare. Alter quidem pollicemur
quis paulo difficilis. ne ta-
men hec via relinquatur ignota: aliū ordine p̄cti me-
dii celi et ascendētis noticiam aperienda videbatur. nā
et ille due res ad propōsitum p̄sens cognitu necessa-
rie sunt. Intra itaq; arcum cum distantia mediū celi ab
orientis aut occidentis puncto: vtri videlicet eorum vi-

cinior fuerit: et cū altitudine meridiana mediū celi. quodq;
in latere descendenti colligitur: denūo lateraliter tabu-
le immittas cum distantia loci solaris ab oriente vel oc-
cidente. reperies enim in angulo cōmuni altitudinē so-
lis quēsitam. Et si initium cācti aut capricorni in medio
celi fuerit: intrabis areatim cum altitudine et meridiana
et distantia solis ab oriente vel occidente. Angulus
namq; cōmuni quēsitam p̄cedebit altitudinem. Ceterū
bigratia repetamus quindēcimum arcus graduum
orientem: et medium celi et eo cognitum gra. 6. m. 35. ca-
piciorni. iteq; cura inueniendi altitudinem solis in prin-
cipio piscium existens. Altitudo meridiana mediū celi
est gra. 18. m. 40. Distantia autē eius a cardine occiduū
gra. 81. m. 35. Idō duo numeros iuxta p̄ceptū areatim
transfereudo in tabulam erudo gra. 18. m. 53. Quē
deinceps numerum cum distantia solis ab ascendente: q̄
est gra. 45. mitto lateraliter in tabulam: et in angulo cō-
muni vt asolet offendo altitudinem solis quēsitam gra.
14. minutia. 4. Illud denum bāud quāquā silentio p̄ce-
tereundum censio. Numerum et arcū introito eliciatq;
qui erat grad. 18. m. 53. declarare magnitudinem anguli
acuti ab horisonte et egypticæ conclusi. Cuius men-
tionem superius alia quidem lege tradidim in proble-
mate vigesimoprimo. Etiam igitur operationum am-
plexi malis: penes testium erit. Alit ad aliud genus
problematum transire libet: quo abundans amplitudi-
nem tabule nostre demonstraremus.

Problema xxviii.

¶ Arcum horisontis quē abscin-
dit ex eo circulus horarius de-
prehendere. Circulos horarios h̄yo-
vndecunq; initia suntium. Idurimū autē
cas subintelligim: horas que a meridie aut noctis me-
die numerari solent. Illi vō circuli quos diximus mari-
mi sunt in sphaera: et per polos mundi circa quos motus
primus regulariter incedunt. Quem deniq; fructum asser-
rant arcus horisontis huiusmodi quos querimus: li-
benter intelliges: si vñq; solaris fabricadis delectatus
es. De quibus cum instrumenta astronomica tractabi-
mus differendi copia dabitur. Intra ergo lateraliter cū
distantia circuli horarij a meridiano et complemento al-
titudinis poli. quodq; in angulo cōmuni occurrerit: ex qua
dra circuli demas. Cum reliquo autē et complemento di-
stātē a meridie intra tabulam areatim. quod enim in la-
tere descendenti colligitur: et nonaginta gradibus abla-
tum relinquit arcum horisontis quēsitum: qui videlicet
inter circulum horarium de quo agitur et meridianum
ipsum continetur. Id distantiam autē circuli horarij
a meridiano arcum equinoctialis circuli accipe: qui in-
ter meridianum et talem horarium circulum comprehendit.
In hoc eodem opere nūq; vltra quadrāntē p̄ce-
dere debes. Idam (vt pene vulgari monimentū vitar)
quinta et septima bore post meridiem accepte equales
suntur arcus horisontales. Similiter quarta et octa-
ua. atq; in hunc modum ceteræ bore equaliter a meridie
et medio noctis remote. Quertamen arcus horisonta-
les horarum ad meridiē vergētū a meridiano supra ter-
ram p̄pēdi debent. Earum vō que ad medium noctis
tendunt spacia horisontalia a puncto anguli terreni sunt
numeranda. Id ceteræ bore equaliter a meridie vtriq;
distātes equos sibi vendicāt arcus horisontales a puncto
meridiei ad vtrāq; partem accipiendo. Cū exemplo

Forſitan planius intelliges queſtiō ad abſolutionē pro-
blematis attinent. Quid ſcilicet portione horiſontis ſecū-
de bore debuit: q̄ quidē inter meridianū ⁊ circulum bore
ſecūde clauſit in regione cui polus ſeptentrionari⁹ octo
et q̄draginta gradib⁹ extollit. Iurta tenoreꝝ q̄ precepti
42. gradus id eſt cōplementū eleuationis polaris: ⁊. 30.
gradus ſcilicet diſtantiā a meridiano lateraliter in tabu-
lam traducēt mihi offerri in area tabule numer⁹ ille 5. 19
m. 33. Cui⁹ cōplementū 5. 70. m. 27. cōplemento diſtanti-
e a meridiano id eſt. 60. gradib⁹ arcum tabule inferes et
trabo arcū 5. 66. m. 48. Hui⁹ demp cōplementū ſcilicet
gra. 23. m. 12. magnitudinē arcus queſiti manifeſtat.

Problema xxix.

Arcū circuli verticalis quē bo-
rarius quilibet ex eo ſecat cir-
culus dimeriri.

Quādamodū prece-
dens ad horiſontalia:
ita pi⁹ ad muralia p̄tinet ſolaria. Intra 5
lateraliter cū diſtantiā circuli borarii a meridiano ⁊ altitudi-
ne poli. quodq̄ in angulo cōi obuiabit et quadratē mi-
nuas. Cū reſiduo autē ⁊ cōplemento diſtantiē a meridiano
tabulā arcum. babebis nāq̄ in latere deſcēdēt arcum
queſiti. C. Exemplū hui⁹ problematis tale damus. Libet
tueſtigare arcū hui⁹ ſcemo di bore ſecūde ſeruiēt. Al-
titudinē 5 poli 48. m. 0. cū 5. 30. m. 0. diſtantiā videlicet a
meridiano intro lateraliter in tabulā ⁊ tueſtigio offerri
mihi numer⁹ ille in area tabule 5. 21. m. 49. Cui⁹ demp
cōplementū 5. 68. m. 11. cū 5. 60. m. 0. id eſt cōplemento di-
ſtantiē a meridiano arcum in tabulā gro ⁊ offendoq̄ ſim-
rationē cepoſiti 5. 68. m. 54. Cui⁹ cōplementū 5. 21. m. 6.
p̄ſcripto arcū q̄ſiti. Tantū q̄ p̄dicto angulū obtentū a li-
nea meridiana ⁊ linea bore ſecūde in plano ſecat tā me-
ridiani q̄ horiſontē ad rectos angulos: quales ſunt pa-
rietes domoꝝ plani horiſontē perpendiculariter inuen-
tes: atq̄ aſtrū rectiſſima facie aſpiciētes. Idē aduer-
tēda eſt q̄dā nō inuēciēda alternitas hui⁹ ſcemo di arcuū
borarioꝝ in quib⁹libet quib⁹ regioib⁹ q̄rū latitudines
agregate ſummā gradū nōnagenariā reddūt. Itā arc⁹
horiſontales vni⁹ earū regionū ſunt q̄dē arcib⁹ murali-
bus alterius regionalis ⁊ ecōtra. De arcib⁹ loquor ad
caſū de boꝝaſpectantib⁹. C. Clerbi gra. In latitudine 48.
gradū arcus horiſontal⁹ bore tertie eq̄lis eſt arcui mu-
rali bore tertie in latitudine 42. graduum. Duo quippe
numeri memoratarū latitudinū 5. 48. ⁊. 42. ſubici qua-
drantē circuli conſtituit. Itā alter de aliis quib⁹ ſcūq̄ la-
titudinib⁹ atq̄ bore eq̄litate a meridiano remotis enuncia-
bimus. Quo demum fieri neceſſe eſt ut in latitudine 45.
gradū arcus horiſontales ab arcib⁹ muralib⁹ borariū
paritū band quāq̄ diſcrepet: cū millo ſit numer⁹ alio q̄
ſuctus 45. q̄dib⁹ q̄dā circuli cōplecti p̄ter q̄ ipſemet nu-
m⁹ 45. 5. Sed ne vocabulū nouitas obſcuritatē inſiciat
p̄ arc⁹ muralis accipe arc⁹ circuli vtiq̄ q̄ int meridianū
et circulos borarios q̄libet p̄tinent. Is nāq̄ circuli vti-
q̄ inſtar parietis aut muri eſt ad aſtrū recte aſpiciēt.

Problema xxx.

Angulos borarios i plano ſup
meridianū quidē erecto: ad ho-
riſontē aut iclinato deſcribere.

C. Alia ſunt tecta domoꝝ plana ad meridiem directe re-
ſpiciētia. Angulos autē borarios vocam⁹ eos q̄ p̄tinent
a lineis borariis: que quidē ſunt cōmunes ſectiones pla-
ni cui⁹ ſcūq̄ ⁊ circulo borarioꝝ: q̄ ſcilicet per polos
mūdi trāſeunt: quēnoſq̄ eq̄toris gradus intercludūt.
Verū hic ſupponit q̄ ariā mūdi p̄ſecat planū tale ita
q̄ oēs linee borarie occurrūt in vno ⁊ eodē puncto: vnde
videlicet emergit ariis mūdi p̄dictis. Quod q̄q̄ in ve-
ritate nō ita ſubſiſtat: quoniā plana apud nos exiſtentia
nō ſunt in medio mūdi: ita q̄ includant centrū vniuerſi:
quod quidē in ipſo arcū ſitu eſt: cū tñ ſemidiameter terre
pene inſenſibilem habeat quātitatē reſpectu ſemidiamē-
tri ſphere ſolaris: linee borarie in locis noſtris deſcripte
eodē p̄pe cōplectunt angulos quos p̄tinent ſi planū
quoduis in medio mūdi ſtatueret. Sed de his alibi ple-
nias diſſeret. Cōſiderare itaq̄ debes eleuationē alteri⁹
poloꝝ mūdi ſup planū p̄poſiti: deinde p̄ oia p̄cedere
ſicut in p̄cedēt. p̄blicate. Hui⁹ ſcemo di autē poli ele-
uationē babebis ſi altitudinē poli in regione tua ſubtra-
xeris ab inclinatione plani ad horiſontē tuū: vel ecōtra
inclinationē plani ab altitudinē poli. Et hoc quidē verū
eſt oū inclinationē plani tēdit ad eam partē reſpectu puncti
verticalis: in q̄ ⁊ polus mūdi ſeptentrionari⁹ reperit. Itā
ſi inclinationē plani fuerit ad partē meridici: minor autē q̄
inclinationē equatoris: cōplementū hui⁹ inclinationis cō-
plemento altitudinis poli adiugendū eſt. Si autē inclina-
tio plani maior fuerit inclinatione equatoris: ipſa adi-
cienda eſt altitudinē poli: vt cōſciat eleuationē poli ſu-
pra planū datum. Et ſi inclinationē plani equalis fuerit in-
clinationi equatoris: eleuationē poli vtri⁹q̄ ſuper pla-
num datū erit nonaginta gradū. ſinguli autē borarii an-
guli quindenos ſuſcipiēt gradus. At ſi inclinationē plani
ad ſeptentriones tendat: equalisq̄ ſit altitudinē poli in
tua regione: nullus erit angulus borarius: verum oēs li-
nee borarie equalitatem ſubmūtēt ⁊ linee meridiane. In-
uenta itaq̄ eleuationē poli ſupra planum hui⁹ ſcemo di
recurrēdum eſt ad vigefimum octauū problema. quicq̄
ad ibi ad horiſontē rectum: hic ad planū p̄poſitū acco-
modabim⁹. Itaq̄ opus eſt vlla ſupputatiōe exemplari
alia q̄ ſuper eo problemate adduximus.

Problema xxxi.

Si planum aliquod horiſontēz
quidē ad rectos ſecat angulos
ad meridianū aut iclinatum
fuerit: angulos borarios in eo
prouenientes miniſterio numerorum

addiſcere. C. Tales ſunt domoꝝ parietes faciē ſuā
addiſcere: ab aſtro vtri⁹q̄ auerſes. Quo autē pa-
cto anguli buſuſmodi in inclinationē inueniri debeant: in
libro inſtrumentozū aſtronomicoꝝ erponemus. Intra
itaq̄ tabulam arcum cum quantitate anguli inclinatio-
nis ad meridianū ⁊ cōplemento altitudinis poli in tua
regione. quodq̄ in angulo cōmuni occurrēt inuentū p̄zi-
mū nuncupetur. Cui⁹ demp cōplementū inuentū cōplementū
cum altitudinē poli arcum in tabulam mittas: ⁊ cōple-
mentum eius quod in latere deſcendēt occurrēt inue-
ntum ſecundum vocabitur. Deinde tale inuentum ſecun-
dum cum cōplemento altitudinis poli tabulē arcum
inmittas: ⁊ numerū lateris deſcendētis inuentū tertium
nominabis. Si itaq̄ diſtantiā circuli borarii aſſumpti a

cūq; regione. non magis itaq; in vna q̄ in alia: sed in oi regione talis semicirculus egyptice cū semicirculo equinoctiali ad eodē terminos definitē ascendit. Porro ex descensione quoq; obliqua arcus egyptice cuiuscūq; latitudinem regionis addidisti facultas prebebitur: si hoc vna animaduertis: q̄ descensio arcus quantūq; equat ascensionem obliquam arcus ei per diametru op̄positi. C̄ Jam ad exemplum oculos cōuerte. P̄donatur quartum gradum geminorum in regione quāpiam eleuari cum. 35. gradibus equinoctialis circuli: petaturq; latitudo regiois illius. Ascensio recta quarti gradus geminorum est gra. 62. m. o. Obliqua aut̄ eleuatio ponebatur gra. 35. m. o. Erit itaq; differentia barum ascensionū recte videlicet 7 oblique gra. 27. m. o. Cuius complementum gra. 63. m. o. Declinatio p̄dicti claudens quartum gradum geminorum est gra. 21. m. o. Cuius complementum gra. 69. m. o. Hec duo complementa lateraliter tabule illate eripiunt gra. 56. m. 17. Cui numerus 7 ex quadra circuli sumtus relinquit gra. 3. m. 43. id est ordinā amplitudinem memorati boreoscopi. Quam deinceps cum declinatione puncti dati arcum in tabulam transportanti mibi fin precepti tenore offertur numerus ille g. 40. m. 13. Quem aufero ex nonaginta gradibus vt relinquitur latitudo regionis quesita gra. 49. m. 47.

Problemata xxxiiij.

Roposito arcu egyptice aliū de q̄ ab alterutra equinoctiali sectiōe exorsio cum ascensione sua obliqua: altitudinem poli aquilonij in ea regione vbi talis obliqua ascensio accidit emetiri.

C̄ P̄misiq; ad negotium descendimus: hoc vnum generaliter persequandū est: q̄ quilibet arcus egyptice cuius duo termini equaliter ab alterutro punctorum tropicorum remouentur habet ascensionem obliquam ascensionis sue recte equalē: eius quoq; termini declinationes ab equinoctiali circulo equales fortuntur. Quo deniq; fieri necesse est: vt duo memorata puncta terminalia p̄motum primum vni 7 eīdem puncto boreiontis incident. Talis aut̄ arcus presentis ludō incipere erit: cum sicut inter ascensiones suas rectam videlicet atq; obliquā nulla reperitur differentia: ita 7 declinationes punctorum terminalium sese non ercedunt. Quibus rebus intercedentibus problema nostrum absolui oportet. Sigitur duo puncta terminantia arcum egyptice datum inaequaliter a punctis tropicis distant: 7 ambo fuerint in semicirculo egyptice boreali: aut ambo in semicirculo austrino: scias primo declinationes eorum 7 quas oportet esse inaequales. Deinde additas ascensionē rectam arcus dati eris eis que supra tradidim. Quā confer ad ascensionem obliquā datā: minorēq; earū cū maiorē deme vt reliquas differentia carū. Quā quidē cū complement maioris declinationis in tabulā lateraliter mittas. 7 q̄ in area tabule vt assole colligē inuentū primum appellabis. Huius inuentū complementū cū declinatione maioris tabule arcum imittas. 7 ex eo q̄ in latere descēdēt offendēs ipsam declinationē minorē: aufer: residuūq; vocabis inuentū secundū. Cū eius inuentū secundū cōplemento ac cōplemento inuentū primum tabulā lateraliter ingredere: 7 numeri 7 angulo cōi

occurrētis cōplementū cū inuentū primo in tabulā arcum imittas. q̄ in latere descēdēt accipies cū cōplemento declinationis minoris lateraliter in tabulam ducito. 7 in angulo cōi repies latitudinē regionis quesita. Si aut̄ alterū quidē punctū terminali fuerit in parte borealialiter vō in parte austrina: inuentū vt supra duab; declinationib; q̄ vna qdē septettrionaria: alia aut̄ meridianā erit. itēq; differentia ascensionū cognita ingredere tabulā lateraliter cū cōplemento declinationis borealis 7 differentia ascensionū p̄dicta: numerūq; anguli cōis pro inuentū primo teneas. Cuius inuentū cōplementū cū ipsa declinatione boreali arcum imittas. 7 q̄ in latere descēdēt colligē declinationē austrine adiungas: collectūq; inuentū secundū appellabis. Eius inuentū cōplementū cum cōplemento inuentū primum lateraliter in tabulā trāser: 7 numerū anguli cōis ex. 90. gradibus aufer. quodq; reliquū manebit cū inuentū primo arcum imittas in latere inferas. Naq; in latere descēdēt accipies numerū 7 in tabulā denovo lateraliter missus cū cōplemento declinationis austrine elicit vt p̄dictū est ex area tabule latitudinē regionis quesita. Huius problemata tale erit exemplū. P̄donat arcus egyptice. 38. gradū a fine ferti 7 vigesimi gradus arcus incipiens: 7 ad finē quarti gradus geminorū definit: libeatq; inuestigare latitudinē regionis in qua memoratus egyptice arcus eleuatur cum viginquibus gradibus 7. 54. minutis equinoctialibus. Ascensio recta dicti arcus est gra. 37. m. 54. Ex qua minuo ascensionē obliquā suppositam: vt reliquas differentia buriusemodi ascensionis gra. 12. m. 3. Initium deniq; talis arcus habet declinationem borealem gra. 10. m. 4. Cuius complementū gra. 79. m. 56. finis autē eius declinationē habet item borealem gra. 21. m. o. Cuius complementū g. 69. m. o. P̄dicti igitur complementū maioris declinationis cum differentia ascensionū g. 12. m. o. mitto lateraliter in tabulā: maioris in area tabule inuenio gra. 11. m. 12. quem numerū voco inuentū primum. Cuius deinceps complementum g. 78. m. 48. cū maiori declinatione arcus dati: q̄ est g. 21. m. o. arcum in tabulā trāsero: sicq; offert mibi in latere descēdēt vt assole gra. 21. m. 26. Ex quo aufero declinationē minorē: 7 residuū gra. 11. m. 22. appello inuentū secundū. Cuius cōplementū g. 78. m. 38. cū cōplemento inuentū primum g. 78. m. 48. lateraliter in tabulā trāserē: mibi offertur numerus ille g. 74. m. 4. Huius itē cōplementū g. 15. m. 56. cū inuentū primo g. 11. m. 12. arcum in tabulā ducēdo accipies numerus ille g. 45. m. 5. Quē postremo cū cōplemento declinationis minoris g. 79. m. 56. lateraliter in tabulā mitto: sicq; erudo latitudinē regionis quesita g. 44. m. 13. In hoc casu ambe declinationes fuerūt septettrionarie. 7 ad q̄ritūq; offerat arcus a fine. 1. 6. g. p̄dicti incipiens: ac ad q̄ritūq; minorū definit. Huius itaq; arcus principia austrina b̄t declinationē g. 5. m. 32. Cuius cōplementū g. 84. m. 28. finis autē eius declinationē b̄t aglonā g. 21. m. o. sicut erit ad dū traditis cōp̄bebid. Cuius declinationis cōplementū est g. 69. m. o. Arcus egyptice oblati 7 boreiōte recto eleuat q̄ g. 74. m. 52. In q̄dā aut̄ boreiōte oblati cū g. 44. m. 52. q̄ritūq; extollit polus aglonā supra q̄ boreiōte. D̄tia memoratarū ascensionū est g. 30. m. o. quā cū cōplemento declinationis boreali lateraliter mitto in tabulā: 7 cū stigio occurrit mibi inuentū primum g. 27. m. 50. Cuius deinde cōplementū g. 62. m. 10. cū ipsa declinatione boreali g. 21. m. o. arcum tabulā trāsero: elicitur numerus ille g. 23. m. 55. quē adiungo declinationi austrine vt crescat inuentū secundū g. 29. m. 27. Cuius cōplementū g. 60. m. 33. cū cōplemento inuentū primum g. 62. m. 10. lateraliter in tabulā ducēti mibi offert numerus ille g. 50. m. 21. Cuius itē cōplementū g. 39. m. 30. cū inuentū primo g. 27. m. 50. arcum in tabulā mitto vt erudat arcus g. 47. m. 2. quē postremo cū cōplemento declinationis austrine g. 84. m. 28. lateraliter in tabulā trāsero

elicitur latitudo regionis quesita grad. 46. m. 45. in qua videlicet arcus ecliplice propositus eleuatur cum arcu equatoris qui in principio huius calculi supponebatur. Porro si fines arcus propositi equali interpedine ab alterutra sectione cognoscituri districte dimidium ascensionis oblique propositae ad dimidium arcum eclipyce datu necessario spectabit. quoniam arcus eclipyce equalis et qualiter ab eadem sectione equinoctialis distantis equalibus ascensionibus in quocumque horisone donant. quamobrem cum medietate ascensionis oblique propositae dimidio eclipyce arcu ad eam spectate problematis preedictis formulam repetemus.

Problema xxxv.

Alto gradu medii celi cum amplitudine ortus ascendens: Ascendentem ipsum latitudinemque regionis si quam habuerit inuestigare.

Habet equidem regio proposita magnitudinem anguli pronientis et eclipyce et meridiano apud punctum medii celi. Quae si minor quadrante fuerit utilis erit presenti negotio. Si aut maior quadrante fuerit: eam ex semicirculo demas: et residuum pro numero introituale ferua. Cum tali itaque numero ac complemento amplitudinis ortus ascendens tabula aream ingrediens. arcus enim in latere descendenti occurrat a puncto medii celi semper signorum consequentia computatus ad punctum eclipyce orientale te perducet: si angulus ex eclipyce et meridiano apud celi mediu pronientis minor fuerit recto: id est si amplitudo ortus ascendens fuerit meridiana. Si aut angulus eclipyce et meridiani recto maior fuerit: aut amplitudo ortus ascendens septentrionalis extiterit: arcum talem in latere descendenti reperiuntur et semicirculo minue: reliquum a medio celi ut prius copiantur occurret tibi punctus eclipyce qui est caput boreoscopi. Ad latitudinem autem regionis inueniendam hac via gradiendi est. Amplitudine ortus ascendens cum declinatione eius ab equinoctiali circulo aream in tabulam mitto. nam quod in latere descendenti offerretur erit complementum latitudinis regionis. ipsum ergo et quadrante circuli auferas: et reliquatur latitudo regionis quesita. Alter quoque eadem reperies: si amplitudinem ortus ascendens cum complemento arcus qui inter medium celi et ascendentem est aream in tabulam miseras. accipies enim in latere descendenti distantiam medii celi a vertice capitis. Cum quidem distantie declinationem medii celi si borealis fuerit adiungas: vel si austrina fuerit ab ea demas. quod enim altero horum modorum pronient latitudinem regionis quesitam perueniabit. Exemplum. Donat mihi quispianitium geminum in medio celi: amplitudinemque ortus ascendens ad boreoscopi borealem quattuordecim graduum: et iubeat inde elicere ascendens ipsum cum latitudine regionis. Angulus meridiani et eclipyce apud principium geminorum est gra. 77. m. 46. Quem vna cum complemento amplitudinis ortus gra. 76. m. 0. aream mitto in ta-

bulam: elicioque semper precepta gra. 83. m. 14. Hunc arcum demo ex semicirculo: quoniam angulus memoratus erat minor recto: et ortus amplitudo borealis. Relinquitur itaque arcus gra. 96. m. 51. Quae a medio celi extensum semper signorum clauduntur ex gradus 7. 51. minutie virginis: ibique pronuncio esse caput boreoscopi. Cuius quidem declinatio aequilonia est gra. 9. m. 1. Quam cum amplitudine ortus ascendens gra. 14. m. 0. aream in tabulam transferendo elicitur numerus ille gra. 49. m. 23. qui tandem ex gradibus nonaginta sumptos reliquit latitudinem regionis grad. 49. m. 37. quam batenus querebamus.

Problema xxxvi.

Ex medio celi dato ac ascendente cognito latitudinem regionis elicere.

Inuenias et vigesimo problemate angulum meridiantem et eclipyce apud punctum medii celi pronientem. Cuius quantitas si nonaginta gradus non transgreditur pro primo numero introituale accipienda est. Si aut eisdem superat ipsam ex semicirculo demere reliquum pro numero primo introituale teneto. Arcum denique eclipyce medio celi et ascendente interclusum pro secundo numero introituale sume: si minor fuerit quadrante. Aut eum ex semicirculo minue si quadrante circuli superauerit. et residuum pro secundo numero introituale ferua. Idosigitur duos numeros introituales in tabulam later alter mitte. nam complementum numeri quem prebebit angulus communis erit amplitudo ortus ascendens: meridiana quidem si boreoscopus in semicirculo eclipyce austrino fuerit. septentrionalia vero si in dimidia eclipyce boreali extiterit. Cognito autem medio celi et amplitudine ortus ascendens: reliqua semper formulam preedictam problematis absolves. Arcum principium hinc cancri siue capricorni regium possidentem cardinem problema erit incertum. quando quidem omnibus hoc regionis commune est: quod altero pectore tropicorum in medio celi extiterit: alterum puncto equinoctialium horizonem obtineat. Cuius exemplum ceteris accipies. Id a beat quodam regio principium quidem piscium in medio celi: caput autem cancri in ascendente. Quid inquirere latitudinem regionis illius. Angulus meridiani et eclipyce apud celi medium est gra. 69. m. 22. Quem cum sexaginta gradibus relictis de semicirculo post ablationem 120. graduum qui cancrum a piscibus remouent: latera later tabule immitto. unde extrahitur numerus ille graduum. 54. m. 8. Is et quadrante circuli demptus relinquitur gra. 35. m. 52. amplitudinem ortus ascendens. Quam denique cum maxima declinatione solis gra. 23. m. 30. capiti cancrino debeat aream in tabulam transiens elicio gradus. 42. m. 54. Cuius complementum grad. 47. m. 6. latitudinem regionis quesitam enunciat. Idipsum efficiam ubi amplitudinem ortus memoratam cum complemento arcus inter medium celi et boreoscopum conclusi id est triginta gradibus aream in tabulam transfero. nam semper infra excripiam in latere descendenti ut affertur gradus quinquaginta octo m. 36. complementum scilicet altitudinis meridiane medii celi. A quo demum complemento minus declinationem austrinam ipsius medii celi: ut superet latitudo regionis quesita grad. 47. m. 6. Idcirco igitur est prima omnium latitudinum que boreoscopum cardinemque regium trigona a radiatione seculi illustrare permittit. Et quae res quid mysterij coniectare poteris.

trigesimifertis. pblematis resumpsero. ex eadem latitudo prime quide regionis. 47. gradus. secunde aut 51. quas sane supputatiunculas breuitatis amore missas facio: cum ex antea tractatis facile comparari possint.

Problema xxxix.

Si due queuis regiones notarū latitudinū eodē instāti comūne quoddā ascendēs cogniturz habuerint: quantum lōgitudinibus earū interfit spaciū explicare.

¶ Per trigessimifertis huius bis assumptum et ascēdēte cōmuni noto ac latitudinibz regionū datis duas ascēssiones obliquas boreoscopi cōmūnis singulatim agnosces. quarum excessus equabit differentia longitudinuz quēsitam. Recte ita quāt ascensione obliqua ascēdētis cōmūnis in vna regione et ascensione obliqua eīdem in altera relinquē differentia lōgitudinū expectata. Ea autē regio orientaliōs erit. que maiorē boreoscopo cōmuni prebet ascensionē. Cuius recte datur exemplū. Duarū regionum altera quidem. 42. gradus latitudinis habeat altera vō 30. Quibus cōmūner in ascēdēte sint. 15. gradus geminorū. Quero quantū longitudines earum differat: vtra earum orientaliōs erit? Inuenio itaqz ascensionē obliquā ascēdētis in prima quide latitudine gra. 51. m. 39. in secūda vō gra. 41. m. 51. Quarū excessus est gra. 7. m. 46. Is ergo notificat differentia lōgitudinū quēsitā. Quoz prima dictarū ascensionū secūda superet: primā regionū orientaliōrē reliqua concludo.

Problema xl.

Si duarū regionū latitudines note fuerint: cū differētia lōgitudinū suarū: an sit aliqz ascēdens eodem instāti ipsis comūne subtiliter explorare.

¶ Si neutra latitudinum minor fuerit complemento marime declinationis solaris: siue equales inuenire erit inter sue nō: modo vertices earū regionū nō sunt in eodem circulo magno per polos mūdi descripto. possibile est eas boreoscopi fortim cōmūne. Verum bunc sermo de loca quonā humane habitationi nō inueniūt missa faciem: ad eas diuturnat regiones calāniā flectendo: quarū latitudines cōplen cinto marime obliquationis solaris inferiores sunt. Si itaqz due latitudines date fuerint equales iūicē: vtraqz earū minor cōplēto marime declinationis solaris: impossibile est propolitas regiones aut data loca quēcūqz in ascēdēte vilo cōmunicare. Duabz autē datarū regionū latitudinibus imparibz oblati hac lege pblema desinendū erit. Intra tabulam areatim cū cōplēto latitudinis minoris ac marime declinatione solarī. qd enī in latere descēdenti offert: argumentū cōmunications appellare licebit. Deinde lateraliter intra cū cōplēto latitudinis maioris et differentia lōgitudinū duarū regionū, quodqz

in angulo cōmuni videbis inuentū primū vocabis. Cui demū inuenti primi complementū cū latitudine maiore in tabulam areatim mittas. et ex eo quod in latere descēdenti occurrit latitudinē minorē abijce. quodqz relinquitur inuentū secundū nūcupabis. Talemēta igit fortū inuentorū tabule lateraliter inferas. eo enī qd in angulo cōmuni offert: et non agnita gradibz cōplēto relidū pro inuēto tertio tenebis. Quod tandē inuentū tertium vna cū inuēto primo areatim in tabulam ducto. et id qd in latere descēdenti reperies: discretionis habēde gra numerus comparandus agnosce. Qui si minor fuerit argumento cōmunications superi: elicto necesse est duas subiectas regiones bis in die naturali idem eodē instāti habere ascēdēs. Si autē numerus comparandus argumentū cōmunications fuerit equal: semel diuturnat in boreoscopo cōcabūt. At si numerus talis ipsum argumentū cōmunications superauerit: nūqz in ascēdēte vilo propolite regiones participabūt. Porro in oibz regionibz longitudine non differētibz caput arietis cōmūner occurrerit: nec nō in iūctū libe. Porro erepta libeat animadvertere. Supponat regio quēdam habēs latitudinē. 42. gradū: alia itē latitudinē. 51. gradū fortis magis quide occidua priorū quinqz gradibus. Volo reddi certior: sit ne cōis quīpiam boreoscopus illis regionibus an nō. Igit in tra preceptū latitudinis minoris cōplēntum puta gra. 48. m. 10. cum marima obliquatione solarī mīto areatim in tabulam: vt inde scaturiat argumentū cōmunications gra. 32. m. 27. Quod scilicet custodiolo donec plus erit. Deinde cōplēntū latitudinis maioris gra. 39. m. 10. cum differentia longitudinū grad. 5. m. 10. lateraliter in tabulam ducenti mibi offertur inuēto primū gra. 3. m. 9. Cuius complementum gra. 86. m. 51. maris latitudo gra. 51. m. 10. areatim in tabulam illate depromant gra. 51. m. 7. A quibus minor latitudo sumota relinquit gra. 9. m. 7. inuentum secundum. Cuius porro complementum gra. 80. m. 53. cum complemento inuēti primi lateraliter in tabulam transferēdo elicitur numerus ille gra. 30. m. 20. Huius itē complementū vna cum inuēto primo areatim in tabulam mittere iubet: vtili line exerpatur numerus comparandus grad. 19. m. 9. Qui quoniam minor est argumentū cōmunications iam diuini seruato: enūciamus duas suppositas regiones qualibet mundi reuolutione duplicem boreoscopo cōmūnem sortiri.

Problema xli.

Si duabus regionibus notas latitudines lōgitudinesqz: aut differentiam longitudinū suarū cognitam habētibz: ac in ascēdente quopiam cōmunicantibz: ascēdens ipsuz cōmune sciscitari.

¶ Nec duo idcirco sepanim? qn nō ipi sibi coherent. Est enī pponere duas regiones nullo prius boreoscopo cōdicatē. cui recte plecturā pcedēs pblema edocuit. pñt aut nequā ad cū casū opē. Si igit vno diuturnat ascēdēte cōiet: et regio borealior fuerit etiā orientaliōr: picipiū capcorni in vtriusqz regionis horizōte eodē instāti temporis constitutē. Si autē regio borealior fuerit occidentaliōr: sua compāte: caput cāri in vtriusqz earum horizōte reperietur.

At si in duobus cōscent ascēdētib: resūme numerū comparandū: quē in precedenti collegisti: ipsūq; cū cōplemeto latitudinis minoris tabule lateralis imittas: 7 qd in angulo cōmuni occurrit cū maxima declinatione 7 solari eodem tabule areatim ingeras, numerus enim in latere descēdētī occurrēs ybi ex quadrāte demptus fuerit relinquet distantiam ascēdētis cōmūis: ab initio quidem capricorni: si regio borealis fuerit etiam orientalis sua compare. Ab initio autē cancri: si dicta regio fuerit occidentalis. Huiusmodi igitur distantiam cōpūta vtrūq; a principio cancri vel capricorni: sicuti res ipsa postulat. 7 perducitur ad punctum eclipytice quod eodem tempore instanti solet esse in vtriusq; regionis horizonte. Exēplū gra. 1a. Xibet resūmere puissinas regiones: quarum horizontes duo eclipytice puncta cōmuniter excipere solent. Numerum itaq; comparandū gra. 19. m. 9. cum cōplemeto latitudinis minoris gra. 48. m. 0. mitto laterali in tabula: elidit q; gra. 14. m. 7. Quem numerum cum maxima declinatione solari gra. 23. m. 30. areatim in tabulam ducenti milib; essent gra. 37. m. 45. Cui ex quadrante decussit relinquit gradus. 52 m. 15. Tantam igitur pronuntio vtriusq; horoscopi cōmūis 7 capitis cancri interapedinem. Qua vtriusq; ab ipso capite cancri numerata: binc quidē gra. 7. m. 45. tauri: illinc vō gra. 22. m. 15. leonis occurrēt. Sic circa horoscopi ludos quadrāte mathematicos agitaui. Jam denum alia specie problematum oblectaberis: et quidem perutili: si vñq; geniturae hominum diiudicare velis. Nam tempora quibus accēdens quodlibet hominum euenturū est per directiones potissimū fides auctoribus habenda est: prescientur. Cui quidem sequentium problematum ministerio (quemadmodū alibi tradidimus) facile comparantur.

Problemata xlii.

Quantum eleuat polus borealis supra circulum positionis stelle cuiusvis: aut alicuius puncti in celo signati perquirere.

Circulum positionis diffinimus cum qui per duas sectiones meridiani et horizontis ac centrū stelle incedit. Eleuatio autē poli borealis supra circulum positionis est arcus circuli magni a polo mundi aequilino incidēs ipsi circulo positionis ad rectos angulos. In hoc negotio prescientia est declinatio stelle cum distantia eius a meridiano. Dum igitur ea distantia sine orientalis fuerit sine occidentalis minor quadrāte supponit: declinatio septentrionaria: intrabis laterali cū cōplemeto declinationis 7 ipsa distantia a meridiano quodq; in angulo cōmuni offēdēs inuentū primū nūcupabis. Cuius deniq; inuētū cōplemetū cum declinatione stelle areatim in tabulam mittas. Cōplemetū enim numeri in latere descēdētī sinistro occurrētis adiectum latitudinī regionis tue inuentum secundū preabit. Duo igitur dictorum inuētōr cōplemetā tabule laterali ingeras: et numero angulari cū nonaginta gradib; dempto: si inuentum secundū min⁹ quadrante fuerit. aut cō nonaginta gradibus adfecto: si tale inuentū secundū quadrāte circuli superauerit: residuū aut collectum vtrūq; res postulat vocabis inuentū tertium. Cum quo deinceps inuentio tertio inuētōr primū tabulam areatim ingroere: 7 quod in latere descēdētī vt a solet offeret inuentū quartū ap-

pellabis. Tale autē inuentum quartum est arcus circuli verticalis inter verticem regionis circuliq; positionis conclusus. Id octandem inuentum quartum cum latitudine regionis in tabulam mittas. babebis enī in angulo cōmuni eleuationem poli borealis supra circulum positionis quam querebas. Si aut distantia stella a meridiano equalis quadranti subiaciat: ipsūq; cōplemetū declinationis pro inuentio primū tenebis. Latitudinem autē regionis pro secundo. itē eliqua vō per ordinem vt prius absolues. At si distantia a meridiano quadrantem superauerit: subtrahet eam ex semicirculo. Cum reliquo autē 7 cōplemeto declinationis tabulam laterali ingroere. angulus nāq; cōis inuentum primū offeret. Cui⁹ demū inuētū cōplemetū cū declinatio stelle areatim in tabulam transferas. cōplemetū enī numeri in latere descēdētī sinistro oblato demptū ex latitudine regionis inuentum secundū relinquet. Cum quo deinceps pede pōia quemadmodū paulo ante docuim⁹ est: quando stellē distantiam a meridiano quadrante minorē subiecim⁹. Illud aut nō est obliuione pretereundū: q; quando cūq; inuentum secundū maius est quadrāte circuli: inuentum quoc; tertū maius erit quadrante. Quocirca cū ipsum non possit haberi in tabula: residuū eius ex semicirculo in tabulam mitte cum inuētio primū: 7 reliqua vniuersa vt prius exequere. Porro si inuentū secundū quadrāte equalē occurrat: inuentū quoc; tertū a quadrante non discrepabit. si simul inuentū primū pro inuentio quarto tenendū est. Nunc si stella ad austrū recessit ab equatore quid facto opus sit cōmonēbim⁹. Intra tabulam laterali cum distantia stelle a meridiano 7 cōplemeto declinationis sue. quodq; in angulo cōmuni offēdēs inuentum primū appellabis. Cuius inuētū cōplemetū cū declinatione stelle areatim in tabulam transfer. latitudinē nāq; regionis sumota cū cōplemeto eius quod in latere descēdētī collige: residuū vocē inuentū secundū. Cōplemetā itaq; dictorum inuentorum tabule laterali inferas. numerus enī anguli cōmūis cū quadrante reiectus inuentū tertium relinquet. Quo rursus inuentio tertio areatim in tabulam misit cum inuētio primū numero: in latere descēdētī sinistro occurrēs inuentū quartum nūcupabitur. Id octandem quartum inuentū cum latitudine regionis tabule laterali imittas. sicq; in angulo cōmuni accipies eleuationem poli vrsini supra circulum positionis quam desiderabas. Et si stella declinatione prioris careat: triplici duntaxat introitu propositum attinges. Nam inuentum primū erit arcus equatoris inter meridianū 7 stellam cōclusus. qui in presenti notus supponitur. Inuentum autē secundum erit altitudo meridiani arietis in tua regione: est cōplemetum latitudinis tue regionis. Ectera vō inuestigabis hoc ordine. Intraabis tabulam laterali cum latitudine regionis cōplemeto cū distantia stelle a meridiano. cōplemetū enī arcus in angulo cōmuni occurrētis inuentum tertium nominabitur. Cum quo deinceps inuentio tertio ea distantia stelle a meridiano scilicet arcu equatoris inter meridianū 7 stellam cōtento areatim tabulam ingroderis. numerusq; in latere descēdētī acceptus pro inuentio quarto tenebitur. Quod postea inuentū qrtū vna cū latitudine regionis laterali in tabulam mittas. angulus enī cōmūis precebit eleuationē poli borealis supra circulum positionis quam expectabas. Verum celerius rem efficias hoc pacto. Cōplemetū inuētū tertij cū cōplemeto altitudinis polaris in tua regione areati tabule inferes. nā cōplemetū enī qd in latere descēdētī offeret eleuationē poli aglonij sup circuli positionis declarabit. Idē autē precepta stellē soli sup boni sōtē offit: accomodā. Si itaq; stellē cuiuspiā aut pūcti sub horizonte eritis positionē mō pōicto nosse velis

supputatione tuam facias cum puncto qui p diametru
littere ipsi opponitur. is enim eodem circulo positionis
in quo stella ipsa iacet: proculdubio reperit. Quanta
postremo sit structus huius pblematum plane intelliges
si ad opus directionum appuleris animu. Logica enim ele-
uatione poli supra circuli positionis in quo iacet signi-
ficatur quipsia scietur et arcus equinoctialis circuli co-
ascendens vel descendens arcui celyptice qui est inter
significatorem et pmissorem id est locum ad que fieri debet
directio, additas insuper alias utilitates hinc bauries: si
paulo pfundius astronomicis meditationibus te imerle-
ris. Et Jam in exemplo (ut arbitror) facilius videbitur
ois. In habitatione cui polus aequinoctius extolitur. 48.
gradibus stella quepiam habet latitudinem. 18. partium
distet a meridiano. 30. gradibus: ad est spacio duarum hora-
rum equali. Solo docere eleuatione poli arcui supra
circuli positionis que stella memorata possidet. Igitur
complementum declinationis stelle 5.2. m. o. cu distantia
eius a meridiano 30. m. o. mitto lateraliter in tabulam
et edisco inuentu primum 5.28. m. 24. Litus deinceps co-
plementum 5.61. m. 34. cu ipsa declinatione 5.18. m. o. areatim
tabule inferendo colligit numerus ille 5.20. m. 34.
Huius complementum 5.69. m. 26. queadmodum regula mo-
net ad inigo altitudinis poli arctici regionis 48. m. o. sicq co-
rescensit 5.117. m. 26. id est inuentu secundum. Illius com-
plementum gra.27. m. 26. (p complementu enim temp accipe
differentia arcus tui quatuordecim et quadratius) cu comple-
mento inmetu primi gra.61. m. 34. lateraliter in tabulam
ducenti mibi offerunt gra.23. m. 54. Quibz ad inigo qua-
drante q inuentu secundum quadra circuli matius fuerit:
ut colligas inuentu tertium gra.11.3. m. 54. Tale inuentum
tertium antero erit semicirculo gra.180. m. o. et residuum 5.66
m. 6. cu inmeto primo gra.28. m. 24. areatim in tabulam
mittens excipio inuentu quartu gra.31. m. 21. Quo tan-
dem vna cu latitudine regionis per tabule latera intro-
ducto depromet eleuatio poli supra circuli positionis
gra.22. m. 45. qua bacte q qrebanz. CRursus distantia
stelle propolite a meridiano quadrante circuli complecta
tur: ceteri vniuersis vti antebac permantebz. Comple-
mento itaqz declinationis perinde quatu inmeto primo
vitemur. Altitudine aut poli arctici regionis tanq inmeto se-
cundo. Quoru complementis gra.42. m. o. et gra.18. m. o.
lateraliter in tabulam missis erapiet numerus ille 5.11.
m. 56. Qui demptus ex qdra circuli relinquit inuentum
tertium 5.78. m. 4. Quod demqz inuentu tertium vna cum
inmeto primo gra.72. m. o. areatim in tabula trasferendo
aueupabor inuentu quartu 5.76. m. 27. Hoc postremu
inuentu cu latitudine regionis gra.48. m. o. lateraliter in
troducunt mibi obicit eleuatio poli supra circuli posi-
tionis gra.46. m. 15. que expectabaz. Reliquos aut eae-
sus quoma band multu ab antedictis discrepant: exem-
plari supputatione non illustramus.

lū aut positionis nō accipias quālibet circuli positionis
medietate: s; q distat qd duas sectiones meridiani et
horizontis terminat. Intra biaz igit tabula nostra areatū
cū latitudine regionis tue datāqz eleuatione poli borea-
lis supra semicirculū positionis. Et nāq qd in latere de-
scendenti ut affollet deprehendes: et non nagina gradibz ab
lato: residuū cū complementō eleuationis polaris date su-
pra semicirculū positionis areatim rursus in tabulā mite-
tes. Complementū enim numeri in latere descendēti occu-
rētis arcū questū perungabit. Et hoc documēto tabu-
la positionū generalī quā in libro directionū posuimz ad
quascūqz regionū latitudines componi potest. Et sic bul-
lusino di arcu equatoris dato eleuationem poli borealis
supra circuli positionis liceat inuenire: pueritēdo videli-
cet presens pblema recurrere ad absolutionē precedentis
pblemat. Et eo enim loco vbi positā declinatio carentē
subicimz propositū arcū sequeris. Intra biaz enim latera-
liter cū complementō arcus equinoctialis dati et latitudi-
ne regionis. Complementū aut eius quō in angulo cōi vti affo-
let repiet: cū complementō latitudinis regionis areatim de
inceps in tabulā mittēdo elices complementū eleuatiōis
polaris: que sit. Quo demū et non nagina gradibz relecto
supabiat ipsa eleuatio polaris supra semicirculū positionis.
Hinc quoqz scatebit noticia quattuor circuloz octo
domos cardinū: interiectis desinientibz: quantū inquit
polus aequinoctius supra vnu quēqz eorū eleuat. quomā
ipsi cū meridiano ac horizonte trigenos equinoctialē cir-
culi gradus fm rationabile considerationē intercludūt.
Que res in opere quidē directionū parumqz delibata in
cōmentariis astronomicis satis lucubrat. Et Jam in exē-
plo liceat scrutari arcū equinoctialis circuli de q agis
in regione cui polus vrsini extollit. 48. gradibus. Sitqz
data eleuatiō eiusdē poli supra semicirculū positionis
gra.17. m. o. Jubet itaqz latitudinē regionis 5.48. m. o.
cū eleuatiōe poli gra.17. m. o. areatim in tabulā mittere.
Quod rite erequeti mibi offeret numerus ille 5.23. m. 10.
Litus complementū gra.66. m. 50. cū complementō eleuatiōis
polaris supra semicirculū positionis gra.23. m. o.
areatim item tabule inferendo elicit arcus gra.74. m. 1.
Quē et non nagina partibz auferens video residuū arcū
equatoris questū grad.15. m. 59. CRursus prebeat mibi
quipsia arcū equatoris 30. gradū a meridiano et semi-
circulo positionis intercludū: posteaqz sibi reddi eleua-
tionem poli vrsini supra eundē positionis semicirculū.
Ados pfecto gerec peritron vbi complementū arcus equi-
noctialis dati: quod est gra.60. m. o. cū latitudine regio-
nis 5.48. m. o. per tabule latera introduxero. Nam erū
enī in arca collectū gra.40. m. 4. et quadratē auferā. rēli-
quū vō gra.49. m. 56. cū complementō altitudinis polaris
in regione propolita gra.42. m. o. areatim in tabulā trāf-
ferēs excipio arcū grad.60. m. 58. Qui erit quadra circuli
decaussus relinquit gra.29. m. 2. eleuationē poli arctici su-
pra semicirculū positionis: que petebatur.

Problema xliij.

Ista eleuatiōe poli boreal sup
semicirculū positionis quepiā
quante sit arcus equatoris ab
eodē semicirculo et meridiano
interclusus experiri. Ne turberis o lector
positionis sermonē facimz: nūc aut de semicirculo in ef-
fectu enī nulla prolixus etat diuersitas. Idcirco semicircu

Problema xliiij.

Cognita portione circuli verti-
calis clausa inter polū horizon-
tis et circuli positionis quem-
cūqz: quārum polus borealis
supra eundem circuli positionis ele-

uatur: quātus deniq; sit arcus equatoris inter meridianū et eūde circulū positionis comprehensus inquirere.

Cum pro elevatione poli aequilonū supra circulū positionis sic operaberis. Intraabis tabulam lateraliter cum latitudine regionis et data portioe circuli verticalis. nam in angulo comuni aucupaberis elevationem poli borealis quæsitam. Ad cognoscendum autē arcū equatoris sic procede. Complementū elevationis poli iam inuenta cū cōplēmēto arcus verticalis dati areatim tabule inferas. nā cōplēmētū numeri lateralis descendētis vti oportet collecti arcū equatoris quæsitū meties. Quia si ex elevatione poli borealis supra circulum positionis scire libeat prædictam portioē circuli verticalis intra areatim cum latitudine regionis et data elevatione poli borealis supra circulum positionis. numerus enim lateralis descendētis portioem quæsitā manifestabit. Si vō p distantia stelle a meridianō et declinationem eius latitudinēq; regionis agnosceret velis huiusmodi portioē circuli verticalis operare circa tenore q̄dragēsimifecundū pblematis: nihil prolixius imutādo donec inuentū quartū elices. tale enī inuentū quartū erit portio circuli verticalis quæsitā. Utili tatē deniq; huius pblematis senties: si prius opinione cāpani de equandis domib; celi intellexeris: quā in ope directionis Lampanti: stellaris quascūq; in eis prudenter collocare. C Exemplo lucidiora reddēt oīa memorata. In latitudine 48. graduū supponat portio circuli verticalis inter meridianū et semicirculū positionis clausa. 30. graduū: sitq; cura inueniendū elevationē poli aequilonū supra eundem positionis semicirculū. Latitudinē itaq; regionis 5. 48. m. o. cū portioe præfata circuli verticalis gra. 30. m. o. lateraliter in tabulā mittēt mibi cūctigis in arca tabule appareat eluatio poli q̄sita gra. 21. m. 42. Cuius deinceps cōplēmētū 5. 68. m. 11. cū cōplēmēto dictæ portiois verticalis 5. 60. m. o. areatim tabule illata eliciat 5. 68. m. 51. Cui ex quadratē ablatis relinquit 5. 21. m. 7. arcū equatoris quæsitū. Versa demū ratione p elevationē poli supra semicirculum positionis. 17. graduū cupiat quipsā quātitatē huiusmodi portiois verticalis. Jgit latitudinē regionis 5. 48. m. o. cū dicta elevatione polari gra. 17. m. o. areatim in tabulam transferat. mox enim sūm præcepta nostra erudet portioem verticalem gra. 23. m. 10. Arcum autē equatoris a meridianō et semicirculū positionis interceptū non aliter q̄ in præcedenti problemate consequetur.

Problema xlv.

Nobis locis in superficie terre restri signatis longitudinū latitudinūq; notarū: quo pacto intercapedinem eorum metiri deceat explanare. C In hoc posposito de globo terre loquimur perinde qua-

si ad vinguē sphericus sit. Per intercapedinē autē locoꝝ significamus arcū circuli magni celestis: qui inter vertices eorum cōprehendit. Je quidē arcus omnī linearū circularū inter huiusmodi puncta verticalia cadētū brevissima perpendicular. Sub eo quoq; arcu itinera negotiatoꝝ fieri solent: nisi q̄ntū asperitas terre stagnaq; et flumina atq; alia id genus obstacula viatoꝝ dispellant. Adinversus igitur arcum talem subtrahē longitudinem vnius loci a longitudine alterius vt relinquat differentia longitudinū. que quidē differentia si ab initio daretur cum latitudinibus locoꝝ: sufficiens via problema ti parata esset: tamet si lōgitudines ignote eēt. Si itaq; latitudines locoꝝ fuerint equales: cōplēmētū vtriusq; earum cum dimidia differentia longitudinū tabule lateraliter imittas. numerus enī arealis duplicatus intercapedinem præbēbit quæsitam. Si vō inæquales erit erit latitudines ille intra lateraliter cum cōplēmēto latitudinis minoris et differētia longitudinū. quodq; in angulo cōmuni offerretur vocabis inuētum primū. Cuius inuenti cōplēmētū cum ipsa latitudine minoris areatim in tabulam mittas. et id quod in latere descendēti accipies et latitudinē maioris demas: residuūq; inuentū secundū agnomines. Alium igitur inuentū cōplēmētū lateraliter introducas. numerus enim anguli cōmunis ex quadratē demptus relinquet intercapedinē locoꝝ quæsitam: in gradibus scilicet quozū sexaginta et trecenti sunt in circumferētia maximī circuli celestis: totidēq; in circuli ferētia maximī circuli terre. Quia si cum distantiam locoꝝ in terra agnoscere libeat sūm mensuram quamlibet visitat: verbi gratia in studiis: explorato numero stadioꝝ rum vni gradū respondentū: sūmnam omnibus gradibus distatē debitā facile concludēs: nisi multiplicādī regulam prolixius ignores. Hæc autē que monum; accipiēda sunt de locis quozū latitudines aut ambe septentrionarie sunt: aut ambe meridiane. Si enim vnius quidē loci latitudo septentrionaria fuerit: alterius autē meridiana: ingredere tabulam lateraliter cum cōplēmēto latitudinis borealis et differentia longitudinū. quodq; in angulo cōmuni offerretur inuentū primū vocabis. Cui inuenti cōplēmētū cum ipsa latitudine borealis areatim in tabulam mittas. numerus enim qui in latere descendēti occurrit adiectus latitudinī austrine constabit inuentum secundū. His deinceps duobus inuētis vti p̄tē vtere. C In exemplo ponantur due vrbes Roma quidē italie Aurenberga autem germanie. Vrbs roma iuxta ptolemei numeros habet longitudinē ab occiduo limite gra. 36. m. 40. Latitudinē autē eius ferme. 42. graduū per instrumentū didicimus. Aurenberge deinceps longitudinē perhibetur 5. 27. m. 40. Latitudinē autē eius gra. 49. m. 30. Que quidē mensuræ et si ambiguous sint: nisi rectioribus experimētis stabiliant: impendebūt tamen non obstabunt quo minus traditiones nostre exemplari quodam calculo illustrent: cum et numeri quozq; cōmētiq; longitudinū atq; latitudinū tale mun; reddere possint. Itaq; differentia lōgitudinū erpositarū inuentū nouē graduū Quā cū 5. 48. m. o. cōplēmēto latitudinis minoris lateraliter in tabulam ductū mibi ex exemplo offerēt inuentū primū gra. 6. m. 41. Cuius item cōplēmētū gra. 83. m. 19. cum ipsa minoris latitudine gra. 42. m. o. areatim tabule immittēdo eruditur numerus ille gra. 41. m. 21. Cui ex latitudine maioris gra. 49. m. 30. decussus relinquit inuentum secundum gra. 8. m. 9. Cuius item cōplēmētum gra. 81. m. 51. cum cōplēmēto inuenti primū 5. 83. m. 19. per latera tabule ingerendo colligitur numerus gra. 79. m. 27. Cui residuū de quadra circuli q̄f. 10. m. 33. intercapedinem prædictā quæsitam. Jam interualli terreni dimensionem arbitrio tuo relinquemus. Si enī duab; vrbi bus intercapedinē miliaria computare libeat. quoz octoginta

ut alunt italicana vni gradui celesti debentur: duc octo-
genarium numerum in decem gradus integros: et nasce-
tur. 800. Deinde. 33. minutas p. gr. 80. producant. 2640.
que diuisa p. m. 60. eliciunt. 44. adiungenda predictis. 800.
ut cōcreſcat totum interuallum. 844. miliariorum. Por-
ro si interapedinem dictam per. 16. cētēderis: prodibit
generum mensura germanice: quam etiam miliarū vul-
go vocant. Similiter summa ſtadiorum inter vrbes me-
moratas concludorum ſcietur: ſi ipsam interapedinem
per numerum ſtadiorum vni gradui debitorum multi-
plicaueris.

Problema xlvj.

Aris latitudinibus duarū re-
gionum inequalibus cum an-
gulo positionis: differentiā lo-
gitudinum suarum indagare.

CSi locus secundus sub eodem meridiano fuerit cū pri-
mo: quia nullus sit positionis angulus: veluti et diffini-
tione inferius aperienda intellige: interuallum tamen
locorum per spacium vni gradui respondens diuidatur.
eribit enim numerus graduum: quibus additis latitudini
primi loci: si secundus borealior fuerit: aut ab ea subtra-
ctis: si primus? fuerit borealior: resultat latitudo loci se-
cundi: eiusdem quidem denominationis semper cum la-
titudine loci primi: preterquam dum numerus graduum et
interuallum locali elicitorum subtrahi nequit: ex latitudi-
ne loci primi. tunc enim versa vice domanda est latitudo
loci primi a numero graduum: vt relinquatur latitudo lo-
ci secundi: alia quidem denominatione quæ erat latitudo
loci primi. Locis autē buseisemodi non iacentibus sub
eodem meridiano cognoscendus est angulus positionis
quem continet linea itineris ad locum secundum cum li-
nea meridiana loci primi. Huius igitur anguli quāti-
tatem cum interapedine locorum id est interuallum in gra-
dus quem admodum paulo ante monuimus conuerso/
mitte lateraliter in tabulam nostram. et quod in angulo
comuni sese offeret inuentum primum appellabis. Cuius
deinceps inuenti complementum cum complemento in-
terapedinis duorum locorum areatim tabule immittas.
eop quod in latere descendenti occurrerit: ex nonaginta
gradibus abiecto: reliquū adiungas complementum lati-
tudinis loci primi: si locus ipse primus borealior secun-
do erit. Aut ex eodem complemento demas: si se-
cundus borealior fuerit. quod cum hac lege compara-
bitur inuentum secundum appellabis. Cum comple-
to itaqz talis inuenti secundi ac complemento inuenti pri-
mi tabulam nostraz lateraliter ingrederet. reperies nāqz
in angulo comuni latitudinē secundi loci quesitam. Cui?
demum latitudinis complementum cum inuēto primo
tabule immittas areatim. nam in latere descendenti ha-
bebis differentiam longitudinū duorum locorum. Quā
adiunge latitudinē primi loci: si postio secundi orienta-
lis fuerit respectu primi. Aut ex eadem minue si occiden-
talis extiterit. quod si sagēdo emerget longitudinem
secundi loci manifestam reddet. Angulum autē positio-
nis de quo superius mentionem fecimus: propemodum
se explorabis. Ducta linea meridiana in plano quopiā
ad equidistantiam horizonis posito: super aliquo eius
puncto tanquam centro describe circulum: qui in 360. equas
particulas vt assidet diuidatur. Centro autē talis circuli
filum adhibeat. quod extendatur quæritissime aduer-
sus secundum locum: ita vt sece circumferentiā descri-

pri circuli. nam arcus eius gradui inter filū et lineam me-
ridianam tue regionis comprehensū angulum positio-
nis representabit. Hinc quoque certior fies vter duorum
locorum borealior altero erit. Atque singulas ta-
lis rectus fuerit: interapedo quidem locorum vice inuē-
ti primi ererebitur. Complementum autem latitudinis
primi loci perinde quasi inuentum secundum erit. Quo
circa latitudinē primi loci cum complemento interape-
dinis lateraliter tabule immittas. mox enim in angulo
communi habebis latitudinem loci secundi. Cuius dein-
ceps complementum cum interapedine locorum areatim
in tabulam traducito: vt numerus in latere descen-
denti occurreris differentiam longitudinū quesitam de-
monstret. Lōtingit preterea inuentum secundum maius
esse quadrante circuli. quod vbi vsuenerit: locufqz pri-
mus latitudinem æquiloniam obtinuerit: secundus au-
strinam ab æquinoctiali circulo latitudinem sortietur: re-
noze quidem supputationis eo manēte qui ab initio tra-
ditus est. Exempla predictorum. Latitudo habitatio-
nis mee gradus. 48. complectitur. Volo scire latitudinē
regiōis cuiuspiam recte ad austrum sub meridiano meo
iacentis. Itaqz 7. pedis mei interuallum habet. 7000. ſta-
dia. facta itaqz diuisione ſtadiorū. 7000. per 700. (tot enī
stadia vni gradui fm Eratoſtēne debentur) ercunt de-
cem gradus interapedinis. quos aufero ex gr. 48. m. o.
quoniam locus ille secundus ad austrum vergit: et relin-
quuntur triginta octo gradus: quibus verter talis loci ab
æquinoctiali circulo remouet. Hunc ponatur secundus
locus orientalis 7 austrus? itaqz angulus positionis. 35.
graduum. Locorum autē interapedo quanta prius decē
graduum. Hæc igitur gradus. 35. et illos. 10. lateraliter in
tabulam ducenti mibi offerunt inuentum primum grad. 5.
m. 43. Cuius deinde complementum gra. 84. m. 17. cum
complemento interapedinis grad. 80. m. o. areatim fm
iusta in tabulam transferendo eliciuntur grad. 81. m. 31.
Huius numeri complementū grad. 8. m. 29. adiungo cō-
plemēto latitudinis prime: quod est gra. 42. m. o. quoniam
secundus locus ad austrum vergit: vt conſeſcat inuen-
tum secundum gra. 50. m. 29. Cuius item complementum
gra. 39. m. 31. cum complemento inuenti primi grad. 84.
m. 17. lateraliter in tabulam missa eliciunt latitudinē se-
cundi loci gra. 39. m. 17. Huius postremo latitudinis cō-
plementum gra. 50. m. 43. cum inuēto primo gr. 5. m. 43.
areatim tabule inferendo extrahitur differentia longi-
tudinum gra. 7. m. 24. que adiecta longitudinū prime regio-
nis conſtabit longitudinē secundi loci. Supputationes
autē reliquorum casuum missas facio: quoniam priorū
pene similes erunt. Cuius circa materiam eclipſū
quedam problemata introducemus.

Problema xlvj.

Inseritatem aspectus lune in
circulo altitudinis pergrere.

CSi preſupponēda est diuerſitas aspectus
maxima ad certum ſitum: quam videlicet luna
sortitur in horizonte eris. Eam itaqz diuer-
ſitatē aspectus cū diſtanta globi lunaris a vertice id est
complemento altitudinis ſue ſupra horizonem laterali-
ter in tabulam mittendo ercipitur diuerſitas aspectus
lune in circulo altitudinis: que poſcebat. Non aliter
elicies diuerſitatem aspectus ſolis: ſi prius maxime ei?
diuerſitatem in horizonte cognoueris. Hæc ratio ſi ad ſo-
lem ererita fuerit ſatis certa procedet. In luna autem
ſi poſueris remotionem a vertice. 35. graduum: et poſueris

calculus a vero deficiet in dimidia pene minutia vñus gradus. Quia fallacia si declinare libet: diuersitate aspectus lune iam ruditer inueniant distatit lunari a vertice capitū supradde: 7 cōgēto numero vt perinde quasi distatit globi lunaris a vertice capitū. Et ue res numerali exercitio ante oculos ponet. Sit distatit lune a vertice capitū. 45. gradū. Diuersitas a sit aspectus maxima in horizonte ad certū lune sitū spectans g. 1. m. 4. quero diuersitate aspectus ad memoratā distatitā lune a pūcto verticali. Ingredeſti itaqz mihi tabulā lateraliter cū. 45. gradibz distatit a vertice capitū: 7 vno gradu ac q̄tuo minutis diuersitatis aspectus offert mor solito numero ille. m. 45. fa. 16. Quem si dinceps tractauero tanqz diuersitate aspectus penitissime erquisita: nullo errore sensibili supputatio p̄aminabit. Verū si tractare desidero calculū: diuersitate aspectus iamū ruditer inuenta ad iocū distantie lunari a vertice: erat gra. 45. m. 0. sicqz decreuit noua quedā distatitā a vertice g. 45. m. 45. fa. 16. cui qua 7 diuersitate aspectus maxima g. 1. m. 4. lateraliter tabulā intrando aucupabor diuersitate aspectus. m. 45. fa. 47. Aut si curiosio: placet extricatio p̄cedā Bpacto. Qui numerus ille g. 45. m. 45. secū. 16. nup̄ime cōstat: 7 in frōte tabule generalis quē edus habet minutias aliqz: ipsi p̄orioris omisiss gradus dūtarat integros. 45. duo lateraliter in tabulam cūm diuersitate aspectus horizontali: elicioqz non aliter q̄ antea. m. 45. fa. 16. Deinde cū. 46. gradibus in fronte pagine acceptis 7 diuersitate aspectus maximā g. 1. m. 4. eodē modulo supputatōis ercudo. m. 46. fa. 3. Inter hunc autē numerū 7 supiorē differētiā repit. m. 47. quā vna cū minutis numeri frontalī m. 45. secū. 16. lateraliter trāsfero in tabellā manūalē. vnde vt affolet ercipo. 35. secūdas minutias. que adiun et diuersitati aspectus primū dicitur est. m. 45. secū. 16. conficiēt. m. 45. fa. 51. Diuersitatem aspectus quēstiam. De si rationē sinuū 7 arcuū factatus fuero: eliciam. m. 45. fa. 50. Qui quidē numerus a p̄orior calculo minūla quadam differentiola recedit.

Problema xlviii.

Diuersitate aspectus lune tam in longitudine q̄ in latitudine perscrutari. C̄ intra lateraliter cū angulo in area tabule offēdēs erit diuersitas aspectus in latitudine quā querebas. Nō aliter inuenies diuersitatem aspectus in longitudine: si cū angulo longitudinis dictaqz diuersitate aspectus lune in latitudine lateraliter tabulā ingressus fueris. Angulus autē latitudinis ferme sic agnosces. Si pūctus celypticus g lune locū p̄ebet in q̄dra occidentali fuerit: angulus p̄ viginti m̄secūdo p̄blema inuētus dicet angulus latitudinis. Si vō fuerit in quadratē orientale celypticē: angulus erit cōuersus celypticē 7 circuli altitudinis puenientē er. 180. gradibz demas. sic nōqz angulus latitudinis notus reliquet. Eū autē angulū latitudinis si rursus er. 90. gradibz tollas: restabit p̄pe angulū longitudinis. De si buiusmodi pūctus celypticē pari intervallo ab horoscopo cardineqz occiduo remoueat: angulus quidē latitudinis erit rectus: angulus autē longitudinis nullus habebit: atqz idcirco diuersitas aspectus in circulo altitudinis erit 7 diuersitas aspectus in latitudine nulla p̄orior diuersitate longitudinis crīte. C̄ Ereplū de diuersitate latitudinis: cuius angulus supponatur g. 52. m. 41. Diuersitas autē aspectus in circulo altitudi-

nis g. 0. m. 39. Ingredeſti itaqz tabulā lateraliter primo quidē cū. 52. gradibz 7 gra. 0. m. 39. elicioqz numerū buc g. 0. m. 30. fa. 44. Deinde vō cū. 53. gradibz 7 g. 0. m. 39. si milititer agendo numerus ille g. 0. m. 31. fa. 2. offert. Cui et p̄dicti differētiā fa. 25. cū. 43. minutis numeri frontalī in latera tabelle manualis traducēdo ercipiunt fa. 18. q̄ adde numero primo p̄ tabulā extracto puta g. 0. m. 30. secū. 44. offitū g. 0. m. 31. fa. 2. diuersitate aspectus latitudinis quēstā. B̄acqz formulā tenebo in diuersitate latitudinis cunctis: assumpto videlicet angulo longitudinis.

Problema xlix.

Inuta casus in defectūde solaris supputare. C̄ Sub aggregato semidiametroz solaris et lune in fronte tabelle manualis accepto quē latitudinē lune visam ad boram medie defectōis: 7 numeri et directo eius in latere reptū q̄re dinceps i area tabule generalis iuxta vñū ḡdū lateris descendētis. q̄ p̄se inuēto: aut erit p̄p̄q̄ssimo: numerū in frōte tabule scriptū erit q̄drate autē: reddū aut cū cōgerie semidiametroz lateraliter in tabulā mittas. habebis enī in angulo cōi vt affolet 7 minuta casus quēstā. De si buiusmodi rationē ercueris cū cōgerie semidiametroz vmbre 7 lune ac vera latitudinē lune in medio defectōis lunaris: elicies minutā casus 7 dimidie morē dimittit: si morē habuerit celypsus lunaris. aut minuta casus sola si nullā in vmbra morē luna patietur. Cui quidē rei indicitū bac formula tradit. Subtracta semidiametro lunari er semidiametro vmbre: si residū sit perauerit latitudinē lune: quā p̄ebet tps vere oppositōis luminariū: morē p̄culdubio futurū dices. Si vō tale residū latitudinē lunari fuerit equalē luna tota quidē obsecrabit: sed mor er vmbra emerget. At si memoratā diffērentia semidiametrozū latitudinē lunari minor fuerit pars dūtarat globi lunari: deficiet: atqz idcirco morē in vmbra habebit nullā. De defectōne itaqz morē accipiente si differēntiā semidiametroz lune 7 vmbre cū latitudinē lunari in tabulas m̄teris: quemadmodū antea congerē semidiametroz cū ipsa latitudinē habebis minutā dimidie morē. q̄ vbi er summa minorū casus 7 dimidie morē demens: relinquet minutā casus secūssū accipienda. Opor tet autē in primis explorari: sit ne futura defectio vtriusvis lunariū an nō. q̄ nēpe hoc pacto conuēgiēt eribebimus. Si congeries semidiametroz visualiū solis 7 lune supauerit latitudinē lune visam q̄ tpe visibilis diuisionis inuenit: luminare matē p̄culdubio deficiet. Si autē q̄litas et latitudinē visē: aut minor ea erit: tpe q̄ purus i orbe nitebit. Verū q̄litas dicte sume semidiametrozū 7 latitudinis visē lunaris globos luminariū ad eandē radiū sam lineam oculo incidentē coercebit. 17. fa. 40. 7 lateraliter speculabimur. Iā si congeries semidiametroz lune 7 vmbre latitudinē lunari quā p̄ebet tps veri plenilunij ercedet: munere fraterno pollicabit aurea p̄bebe. Si vō memoratā congeries latitudinē talē quērit: frōte vtr bilari: t̄get nor atra diane. C̄ Ereplariū autē numeratō certo rēte reddet. Sit cōgeries semidiametroz visualiū sol 7 lune. 32. minutie vñi gradus. Latitudo autē visā lune ad visibilē diuisionē. 27. minuta cōplectat. In tabellā itaqz manuali sub. 32. minutis inuenio. m. 26. fa. 40. 7 directo sinistroz sum. 50. minutā. restāt ad huc. 20. secūde. quoniam 27. minuta sunt in numero latitudinis. sed. 20. secūde sub 32. minū in latere tabelle reddunt fa. 37. sicqz colligunt m. 50. fa. 37. Hunc numerū q̄ro in area tabule generalis iuxta vñū ḡdū sub. 57. gradibz numeri frontalī apud

vnū gradū lateris sinistri regio. m. 50. fa. 19. sub. 58. ante gradū? video. m. 50. fa. 53. Huius secūdo numerū? meū? videlicet. 27. est. primū? idcirco numerū frontalem. 58. dēmo. et 90. gradibus? relinquunt gr. 32. quos cū 50. m. 32. id est aggregato semidiāmetroz laterali in tabulā mittēs elicio minuta calūs. m. 16. fa. 58. Huius si cū ratiōis supputare libeat: cū numerus iuxta vnū gradū accipiedus vnū sit scriptus in tabula: sed super eū q sub numero frōtali. 57. reperit: puta. m. 50. fa. 19. m. 18. secundis. Differētia aut lateralis iuxta vnū gradū est fa. 34. h modo pcedā. In tabella manuali sub. 34. secundis quero 18. secundas: et ex directo eārū in latere tabellae inuenio. 32. minutias primas: q ad iugē dē sunt. 57. gradibus in frōte tabule occurrētibz. Hūc ita q vnū gradū gra. 57. m. 32. minū? et 90.7. reliquit ille gra. 32. m. 28. cū quo dēinceps 7 aggregato semidiāmetroz pcedo vt supra. Hūc qdē ad defectionē solarem spectat. Hāc in lunari obscuratione postea q numerus introitalis quem ad modū antebac monuim? didicisti nulla pzius diuersitas est: nisi q cōgeries semidiāmetroz lūne 7 vmbre q nō superat vnū gradū. Idcirco frōntē tabellae manualis ad. 64. minutias vnū gradū credidim?: ne nimis varia numerorū denotatio supputatorū turbā aliquā inferret. In hisce autē supputationibz diuersitatis aspectus 7 minutior calūs cōtingit sepe numero alterū numerorū introitaliū esse minōrē vnū gradu. tunc ita q reliquū quere in frōte tabule generat? in ea pagina numero arealis iuxta vnū gradū repositus cū numero introitali parualo lateraliter in tabella manuali mittat. nōq in angulo eū colligē? numerū quēsis. Porro si numer? frōtalis minutia habuerit: hūc numerus introitalis parualus vnū gradu minōr: lūc maior eo fuerit: predicti opus ingenuū addū crit. Hūc quidē p numerū frōtaliū minuta sua ptermissa agendū est. deinde vō p numerū integrū primo maiorē. Differētia aut numerorū elictorū cū minutia numeri frōtalis lateraliter in tabella manuali trāsferrat: quodq in angulo cōmuni vt aliolet colligetur addendū est primo numero per tabulam elicto.

Problema Quinquagesimū.



Ante om flexionis tenebrarū in eclipysibus determinare.

Quid sit flexionis bulisemodi querit in circulo magn? p cētra luminariū in defectione solari aut p centrū lūne 7 centrū circuli vmbre in lunari trāfrens. qui quidē circulus magn? ob cū rem potest vocari circulus flexionis. Hūc punctus inuestigari solet ad principiū 7 finē defectionis: itēq ad finitū 7 finē morē si quā habet eclipys lunaris: vt cūq in quo pūcto lūne vtriusq luminariū vel prima defectio vel postrema emat: id est hōre astronomorū loquendū vbi primū aut postremū circuli luminariū in solari quidē obscuratōe: aut circuli lūne circuliq vmbre in lunari defectōe se se attingēt. Qd priusq accidat pntēficere pfecto locū dū est 7 nobile mirummodū: plusq admiratōis pbeet q tenebrarū magnitudinē atq durationē pnciare. In primis itaq exprobandū est: habet ne luna latitudinē ea hora q qrim? flexionē tenebrarū an nō. Si enī latitudinē carnierit: punctum flexionis erit caput boreoscopi aut cardinis occidui: vtri videlicet luna videtur exiterit. Scias igit affcēdens ea hora 7 amplitudinē ortūā etiam punctū enī hanc ortus amplitudinē terminās volutari tūc latissimā. Qd 7 de qdē dē intelligēdū est: si luna

propinquo ei fuerit q orienti. Si autē luna habuerit latitudinē aequilonā: cūq primo p dēcimonū pblema horizontalem distantia cūq ab oriente equinotiali vel occidentē: quā pgrino quodā nōle vocat azimut: solus qdē in eclipys solari: vmbrosi aut circuli in lunari. Hūc enī addices in quo pūcto circulus altitudinis solis vel vmbre incidit horizonti. qd quidē pūctū propter facilitatē intelligētia punctū incidētē libet appellare. Lūc sitū diligētē notabis. nā ab eo inferre cōputabit arcus quidā ad punctum flexionis dēclinens. Hūc ostēda ex supra dictis ad boreā pōderationē tūc quere angulū quē pūctus circulus altitudinis cū eclipysica apud locū vtrūq solū qdē in solari defectione: vmbre aut id est puncti q p diametru solū opponit in lunari obscuratione. Ex q dēmoz angulo tres alios verticē cōmūne habentes cū dicto angulo faciliatē agnosces. Hāc si angulū huiusmodi borealem atq orientalem: cuius magnitudo p vigintiūmū dū pblema de pcedit: et. 80. gradibus dē pncipis: reliquet angulus borealis occidentalis. Angulus aut meridiamus occidentalis equat angulo boreali orientali: angulus meridiamus orientalis angulo boreali occidentali: reperit equalis. Hōs quatuor angulos nota scōtum cum suis denotatiōibz. Altitudo dēinceps solis vel circuli vmbrosi inueniēda est ad boreā considerationis tue. Quibz rebus si dispōsitis accipe duos numeros introituales: quorū vnus sit latitudo lūne vtrā in solari quidē defectione: aut latitudo lūne vtrā in eclipys lunari. Hūc aut sit ageries semidiāmetroz vtriusq solis 7 lūne tā in principio q in fine solaris eclipys: aut aggregatū semidiāmetroz lūne 7 vmbre in principio 7 fine eclipys lunaris. In principio autē morē 7 fine cū anser semidiāmetru lūne et semidiāmetroz vmbre: 7 residū pto secundo numero introitali ferua. Hōc ita q maiorē queras in frōntē tabellae manualis: minōrē vō directe sub eo 7 numerū in latere sinistro collectus accipe dēinceps in area tabule generalis iuxta vnū gradū lateralem. Quō pōte inuēto numero in frōntē tabule occurrēs angulū flexionis representabit: quem videlicet circulus flexionis cū eclipysica cōtinet. Si vō cū nūquā in tabula offēderis accipe numerū arealem pxiore minōrē vnū gradū apōstolū. cuius 7 numeri tūc differētia quere in area tabellae manualis sub differētia trāsferralī iuxta vnū gradum posita. minutiasq in latere tabellae oblatas numero frōtali cui arealis predict? subiacet ad iugē: vt cōtēscat angulus flexionis quēsis. Quē deinde pferas ad angulū borealem occidentālē: si ad principiū eclipys vel totalis obscuratōis cōputū feceris. Hāc si angulus flexionis fuerit equalis ei ad quē pferit pūctus flexionis idem erit cū puncto incidētē. Si autē duo anguli minores colati inegres criterit: alterū erit altero minū: numerū residuū cū complemento altitudinis solis aut circuli vmbrosi lateraliter tabulā mittas: 7 cōplēmētū cuius qd in angulo cōlō offeret cū complemento residū paulo ante dicti arcum in tabulam ducas: arcus in latere descendenti oblati erit quadratē minū. sic enim reliquet numerus punctū flexionis cūestigio pōditurus. Hūc igit numerū computa in horizonte ad principiū quidē eclipys vel totalē obscuratōis a puncto incidētē: sup? notato orientē versus si angulus flexionis minor fuerit angulo boreali occidentali: aut occidentē versus si maior eo fuerit. In fine autē eclipys vel totalis obscuratōis huiusmodi residū arcū cōputa in horizonte a puncto incidētē aduersus occidentē si angulus flexionis minor fuerit angulo boreali orientali: aut versus orientē si maior eo fuerit. sicq perducitur ad punctū flexionis quēsis: vbi videlicet circulus flexionis incidit horizonti. Qd si meridiana latitudinē luna fortis: mētēs oibz vt supra exprobandū est: p qd angulū flexionis: ipse angulus flexionis

tio maioris et debet. Deinde cum eo argumeto declinationis et completio inuenit primi tabula lateraliter in gredere. Insuper enim in arca eius ut assolebent venaberis declinationis stelle questis: eade vtiq; denotatione qua fuit argumenti eius. Quia si nulli euenierit argumentum declinationis: non videlicet inuenit secundum latitudinem stelle eundem quidem numerum ducit aut denotationem possidet: nullam quoque declinationem stelle poterit habere. Quicquid autem ducit de stellis tradidit: alia quoque celi punctis qui buccinas accomodari poterit: modo longitudinem quidem in eclipctica: latitudinem vero ab eade habeant cognitas. Stelle postremo aut puncto celi cubile latitudinem nullam habet: eam tribus declinationibus quia locus eius in eclipctica obtinet. Preterea inuenit secundum alij elicitur bac lege. Distantia stelle ab alterutra sectionum equinoctialium perinde quasi ascensionem rectam accipit: et ei arcu eclipctice debetur. Tabula ascensionum rectarum assignat. quo cognito: quantitas declinationis finis eius arcus fortitur et plorat. Numerus enim talis declinationis ostendit portionem circuli latitudinis inter equinoctialem et eclipcticam comprehensam. Quia paulo superius inuenit secundum appellabatur. neque ea incepte radice declinationis quilibet agnoscitur. Utamur itaque viam elegit: nihil melius refert. Est enim animus impetientiarum non qualesvis vias ad possumus: quodlibet ducit monstrare. Vsum tabule generalis quia paucissimis verbis explicare. Jam in crepusculo videamus. Stella quedam locum longitudinis habeat in principio arctis: cui declinationem borealem graduum. cui declinationem scrutabor: bac via. Complemetum maxime declinationis solaris gra. 66. mi. 30. cui latitudinem memorata lateraleriter in tabula transferendo offert more pugnato numerus ille gra. 5. mi. 30. quod notificat declinationem questis: borealem quidem quoniam latitudinem stellae ad septentriones vergebat. Sed esto locus vernus cuiuspiam stelle finem longitudinem in quoddecimo gradu tauri. que habeat latitudinem aequinotiale septem graduum. Quero declinationem eius ab equinoctiali circulo. Distantia itaque loci eius a capite cancri quod est gra. 45. mi. 0. cum maxima obliquatione solaris gra. 23. mi. 30. mittit lateraleriter in tabula: ut eliciat inuenit primum gra. 16. mi. 23. Cuius deinceps complementum gra. 73. mi. 37. cuius completio maxime obliquationis solaris gra. 66. mi. 30. arcum in tabula ducit: mihi tantum offert arcus gra. 72. mi. 55. cuius residuum de quadrante gra. 17. mi. 5. voco inuenit secundum: borealem quidem quod semicirculus eclipctice borealis locum stelle prebeat. Cui rursus inuenit latitudinem stelle borealem ad hoc ut eclipctice argumentum declinationis borealem gra. 24. mi. 5. Quod tamen cum completio inuenit primum gra. 73. mi. 37. lateraleriter transferendo in tabula erudo declinationem stelle aequinotialem gra. 23. mi. 37. In alijs denique casibus pari prout formula procedendum est: nisi quod argumentum declinationis erit inuenit secundum latitudinem stelle multifaria nasci solet. Que res cum antea satis lucubrata est: tum facilius admodum censetur.

Problema liij.

Utrum eclipctice cum quo stella quilibet celum mediat commonstrare. Quoniam stella in altero puncto tropicorum sibi locum deligit: non aliud celi mediationis punctum expectat quam locum suum verum in eclipctica. Alibi autem si quapiam stella possit: arcu eclipctice in loco eius desinente perinde quasi ascensionem rectam intelligat: arcus eclipctice tali ascensioni debetur et superioribus addice. qui quidem arcus baud absurde nuncupabitur radius ascensionis: ea serua diligenter,

Deinde non aliter quam in precedenti elicias inuenit primum intrado tabula lateraliter cum maxima declinatione solaris et distantia loci stelle a cancro vel capricorno: utriusque vicinior fuerit. Alie deinceps inuenit primum cum completio declinationis stelle arcum in tabula ducendo eripietur inuenit secundum. Quod rursus cum argumentum declinationis stelle lateraleriter in tabula transferat. arcus in arca reperiatur: plerisque appellat diu transferat stelle per celi medium adde radii ascensionis antebac seruata si semicirculus eclipctice descendens locum stelle prebeuerit: declinationem ipsius stelle fuerit borealis: aut locus stelle in semicirculo ascendente datus fuerit cum declinatione meridiana. Alie vero differentia transitus auferat a radice ascensionis si locus eius in semicirculo eclipctice descendenti reperiatur: declinationem stelle auferat fuerit: aut stella medietate celi ascendente possideat cum declinatione aequinotialem. Quod cum additione vel ablatioe sicut res expolitum inuenit ascensio recta ad eclipctice punctum ipsius: qui cum stella data celi medietate. Per quam denique recta ascensionem punctus eclipctice quod sit modo sepe dicto inueniatur. Quotiens autem et tali additione plures quam 360. gradus precesserit: circulus vero erit reuoluentus. Quod vero et radice ascensionis memorata differentia transitus auferat nequit: numerus totius circuli adnectendus est: ut super summa cohabit possit fieri subtrahitio. Illud demum non est ignorandum: quod altero puncto equinoctiali stellae locum prebeat maxima quidem declinatione solaris pro inuenit primum latitudinem aut ipsius stelle quidem denotatione fuerit pro argumentum declinationis sumendum est. Porro si centrum stelle sub eclipctica situm fuerit: non arbitror te questum ire aliud eclipctice punctum quod cum ipsa stella celi medietate preterit: id sub quo stella ipsa constituit. Contingat preterea argumentum declinationis in parte quadrante circuli. tunc itaque numerus postremo per tabulam elicitus a semicirculo auferendus est: ut relinquatur differentia transitus per celi medium. cuius deinde procedendum est vti supra monuimus. At si tale argumentum declinationis quantitas circuli exquantur differentia quoque memorata a quadrante non discrepabit. Sed ducatur tam ad numeros et plures. Utolo scire cum quo puncto eclipctice ea stella celi medietate: qua supra posuimus in quoddecimo tauri cui latitudinem borealem septem graduum. fingo itaque distantia loci stelle a capite arctis id est. 45. gradus tanquam ascensionem rectam. cui de eclipctica debet arcus ille gra. 47. mi. 29. quem voco radice ascensionis. Deinde distantia loci stelle a capite cancri id est. 45. gradus vna cum maxima declinatione solaris gra. 23. mi. 30. lateraleriter in tabulam ducendo elicio inuenit primum gra. 16. mi. 23. quod rursus cum completio declinationis stelle gra. 66. mi. 37. arcum in tabulam mittit: ut emerget inuenit secundum gra. 17. mi. 30. Cuius demum atque argumentum declinationis gra. 24. mi. 5. lateraleriter tabula intrado eripit numerum ille gra. 73. mi. 11. id est differentia transitus stelle per celi medium. quam aufero et radice ascensionis gra. 47. mi. 29. quem admodum posito stelle erigit: et reliquit ascensionem rectam gra. 40. mi. 18. ad punctum quod situm ipsius. cui quidem arcus eclipctice debet gra. 42. mi. 46. a capite arctis sumendo inuenit id est gra. 12. mi. 46. tauri. punctus itaque hunc eclipctice arcum terminans ad celi medium vna cum stella posita pugnare solet.

Problema liij.

Utrum declinationem stelle cuiuslibet aliter quam antebac tradidit est indagare. Si vero stelle locus fuerit in altero puncto tropicorum equinoctialium intra primum lateraleriter cui latitudinem eius et completio maxi

me declinationis solaris. nā in angulo cōmuni habebis declinationē stelle questas eiusdem denominationis cū latitudinis sua. Si autē dimidia egyptica borealis stelle locū pbeuerit: intra lateraliter cum complemento latitudinis et distantia stelle ab initio cancri. quodq; angulus cōmunis offret inuentum primum nominabis. Dein de arcum ingredere cum complemento huius inuenti primi et latitudine stelle. eo nūq; quod in latere descendēti accipies et nonaginta gradib; ablato: residuū appellabitur inuentū secundū. Quod demū confer ad maximā solis declinationē. nam si fuerit equale ei: et latitudo stelle septentrionaria extiterit: deme inuentū primum ex quadrante: et residuū pro declinatione stelle teneto. Si vero bee duo iniucē collata fuerint inaequalia: alterum ex altero deme: et residuū serua. Latitudine autē meridiana exsistente inuentū secundū semper appone maxime solis declinationi. quodq; hoc pacto vel remanebit demū: vel confabib; adiungendo sicuti res postulat: argumentū declinationis nuncupet: boreale quidē semp qñ latitudo stelle ad septentriones vergit. Dum autē latitudo stelle austrina supponit: varium erit iudiciū. Nam si argumentū declinationis quadram circuli superauerit: ipsum ad bñe boreale censibitur. Si autē extra quadrantem manserit: meridiano donabitur cognomēto. Cōplemētū igitur huiusmodi argumenti cum complemento primi inuenti tabule lateraliter imittas. numerus enim arealis more peruulgate elicitis declinationē ostendit questitā: borealem quidē si argumentū sepe memoratū tale fuerit. austrinā vō si illud austrum fumpserit agnominationē. Ceterū argumentū tali nonaginta ad vngū gradus complectēte nulla propterea stelle tribuitur declinationē. Quia si austrinū egyptice femicirculi stelle posiderit: intrabis lateraliter cum distantia eius a capite capricorni et complemento latitudinis stelle. angulus enī cōmunis inuentū primum veluti superius nūci reddet. Cui; dein ceptus inuentū complementū cū latitudine stelle areatim in tabulā mittas. quodq; in latere descendēti oblatū fuerit ex quadrante minuas vt relinquat inuentū secundū. Cui; rursus maximā solis declinationē semp adicias dū latitudo stelle septentrionaria fuerit. Si autē meridiana extiterit latitudo ipsum inuentū secundū et maxima solis declinatione reicias: aut e contra maximā solis declinationē ex inueto secūdo. quodq; vel collectū fuerit vel residuū put qñitas negotij boreali vocabis argumentū declinationis: meridiani quidē semp qñ latitudo stelle meridiana supponit. Latitudine autē boreali subiicias: si tale argumentū quadrā circuli superauerit meridiani itē habebit. si vō min; quadrāte fuerit: borealē desuperit denoiatio. Cōplemētū igit talis argumentū declinationis cum cōplemēto inuenti primi tabule lateraliter imittas. qd enī in angulo cōmuni videbis circuli declinatiōe stelle questita: eius quidē denoiationis quā argumentū declinationis habebat. Ceterū si inuentū secundū equale esset maxime declinationi solis: latitudog stelle meridiana: dempto inueto primo et nonaginta gradibus: relinquere declinatiōe stelle austrina. Ideo argumentū declinationis quadram circuli precise complectens stellam ab equinoctiali circulo nunquā secedere permittet. C Exempli gfa Resumatut stella pissima in quindodecimo tauri gradu existens: ad septentriones remota septem gradibus. Distantiam eius a capite canerino 45. gradū cum complemento latitudinis gra. 83. m. o. iura tenore precepti lateraliter in tabulam mittēs erepito inuētū primum g. 44. m. 34. Cuius complementū gra. 45. m. 26. cū latitudine stelle gra. 7. m. o. areatim deinceps in tabulam dedecō elicitur gra. 2. m. 31. qui ex quadrante sumō et relinquit inuētū secundū g. 80. m. 2. ex quo demō maximā solis obliq; tione gra. 23. m. 39. vt remaneat numerus ille g. 56. m. 39.

quem vocabo argumentū declinationis: boreale quidē qñ stella locū in dimidia egyptica boreali obtinet: latitudog borealem. Huius complementū gra. 33. m. 21. cū cōplemēto inuenti primi gra. 45. m. 26. lateraliter in tabulam transferēti mibi eribit declinatiō stelle gra. 23. m. 3. septentrionaria: quonia argumentū declinationis a septentrionib; denoiatū est. Sed ponatur stella questā in medio tauri fm longitudinē vt supra: cum latitudine austrina septem gradū. Cum igit in hoc casu numeri in troitales primi sint equales prioribus: inuentū primum vt antea erit gra. 44. m. 34. Idari quoq; ratione inuentū secundū repetet gra. 80. m. 2. Ceterū tale inuentū secundū maxime declinationi solari adiungem; stella meridiana obtinēte latitudinē: sicq; concrecet argumentū declinationis grad. 103. m. 39. quod quia nonagintiū superat boreale compellabitur. Eius deinceps complementum gra. 13. m. 39. cū cōplemēto inuenti primi gra. 45. m. 26. lateraliter in tabulam ductū mibi offeretur declinatiō stelle gra. 9. m. 40. boreali denominatione qua et argumentū declinationis erat. Ceteri casus exemplari calculo egēbūt: si que iam dudum tractauimus reuoluere nō piget. Habes tandē amice geminas declinationis supputandē formulas. quarū vtinam exerceat velis arbitrio tuo conceditur. ego si quando visus fuerit priorē amplecti malim: est enim cum breuifuscula satis: tum etiam alquanto extricatio.

Problema liiij.

Anticum celi mediatiōis alia quadam ratione perscrutari.

Si locus stelle verus fuerit in principio artis aut libe intra tabulam areatim cum complemento latitudinis stelle et complemento declinationis eius. nam quod in latere descendēti offēdes ex quadrante sumō uti reliquet ascensio recta arcus egyptice qui inter locū stelle et punctū celi mediatiōis continet. Que cum duobus egyptice arcub; vtriq; equalibus debeas: erploandū prius est in vtra quarta rum egyptice punctū celi mediatiōis cristat. Alis aut punctus semper erit in medietate zodiaci austrina si latitudo stelle borealis fuerit. et eōtra in medietate boreali si latitudo stelle austrina extiterit. Quo satis comperto ascensio recta per tertū problema ad punctum egyptice questitū te perducet. Si autē locus stelle extra dū pūcta equinoctialia datus fuerit intra lateraliter cum complemento latitudinis stelle et distantia eius ab alterutro puncto rum tropicorū: cui videlicet locus stelle viciniōr fuerit. quodq; in angulo cōmuni offēdes cum complemento declinationis stelle areatim in tabulam mittas. et eo qd in latere descendēti occurrit et nonaginta gradibus reiecto manebit ascensio recta arcus egyptice qui inter equinoctialē et punctū celi mediatiōis questus cōcludit. Que cū duobus in vna medietate egyptice respondet arcub; adducionem erit notū celi mediatiōis punctū: nisi sciatur an ipsum finit in eadē quarta egyptice cū vero loco stelle in diuersis. Quercus hoc pacto erploabitur. Si extra quatuor celi cardines stella queuis cōstitat: intrabis tabulam nostrā lateraliter cum complemento maxime declinationis solaris et distantia verū loci stelle ab altero puncto rum tropicorū. eiusq; quod in angulo cōmuni occurrit complementū cū maxima solis declinatione areatim tabule imittes. et cōplemētū eius quod in latere descendēti colliget vocabis argumentū locale. Si itaq; verū locū stelle fuerit in medietate egypti

ce boreali: 7 latitudo stelle meridiana erit erit: vel **¶** boreal: minor tamen argumento locali: locus versus stel
le 7 punctus celi mediationis in eadem quarta erit. Si
militer si i medietate austrina fuerit: 7 latitudo stelle bo
realis: vel si meridiana fuerit: minor quide argumento lo
cali: in eadem quarta reperitur octo duo loca. In me
dieta aut boreali si latitudo stelle septentrionaria
et esset argumentum locale: aut in medietate austrina la
titudo stelle meridiana superauerit huiusmodi argu
mentum locale duo loca predicta in diuersis reperitur
quarta. Alias aut punctus celi mediationis erit initium
arctis vel libe. Arctis quidem dum locus stelle versus
in semicirculo ecliplice ascendenti fuerit. Libe autem si
reliquus ecliplice semicirculus stelle locum preberit.
C In exemplo retractetur memorata stella: cui loci de
dimus in quinta decima parte tauri: cum latitudine bo
reali septem graduum. Unde 7 declinatio eius aquilo
nia erit boreatur gra. 5. 23. m. 3. Jgitur complementum la
titudinis sue gra. 83. m. o. cum distantia a capite cancri
no gra. 45. m. o. lateraliter in tabulam traducuntur mihi
erit obiectum inueniuntur punctum gra. 44. m. 34. Quod rur
sus inueniunt cum complemento declinationis stelle gra.
66. m. 57. areatim in tabulam mittendo excipitur nume
rus ille gra. 49. m. 42. Qui desumptus ex quadra circuli re
linquit gra. 49. m. 18. ascensionem videlicet rectam que
spectat ad punctum celi mediationis questum. Hinc aut
ascensionem recte a sectione vernali initium sumendi de ecy
ptica respondet fin signorum seriem duodecim gradus
et quadraginta sex minuta tauri. Contra subsequenti 30
signorum gradus. 17. m. 14. quare. Quamobrem stel
la posita cum altero punctum terminantur arcus
predictos celum mediare solet. Sed quoniam latitudo
stelle est borealis: minor quidem argumento locali: veluti
tamam apparebit: necesse est punctum celi mediationis
in ea quarta ecliplice offendi: in qua 7 locus longitudinis
ponebatur: id est in quarta vernali. Idcirco igitur
finiens duo decim gradus 7 quadraginta sex minutias tau
ri vna ad meridianum peruenire cogitur cum stella pro
posita. Hinc ad argumentum locale inueniendum ap
pellatur animus. Complementum marine declinationis
solaris gra. 66. m. 30. cum distantia loci stelle a cancrino
capite gra. 45. m. o. lateraliter in tabulam ferens mor
fendo gra. 49. m. 25. Cuius complementum gra. 49. m. 35.
cum marina declinatione solari areatim in tabula mit
tendo hunc numerum aucupor gra. 31. m. 25. Cuius comple
mentum gra. 58. m. 25. voco argumentum locale: q puncto
celi mediationis locum definire solet. Cides igitur vt
latitudo stelle borealis septem gradum multo minor est
tali argumento: atq idcirco punctus celi mediationis
cum vero loco stelle (quemadmodum paulo ante diximus)
eandem ecliprice quadram possidere coguntur.

Problema lv.

¶ Er datam stelle declinationem
punctumq ecliprice cu quo ipsa
celum mediar: latitudinē suaz
ac verum locū in ecliprica co
gnoscere.

¶ De stella fermo cinabimur latitudinem
queres latitudinē. Strum aut stella quilibet proposita
latitudinem habeat: sic explorabimus. Si declinatio stel

le declinatioq puncti celi mediationis equali numero 7
part denominatione fuerint: stella absq latitudine libi
locum in ecliprica deligit: in ipso et idcirco puncto ce
li mediationis. Si vo declinationes huiusmodi aut nu
mero equalis non fuerint: aut denominatione distine
les: stellam ipsam ab orbita solari o. cedere non est du
bium. Que itaq cum altero punctum tropicum me
diat celum: in eodem quoq locum verum tibi vendicat.
Declinationem autem talis puncti tropici adiunge de
clinationi stelle: si diuersarum fuerint denominationu
et constabit latitudo stelle: nome videlicet declinatio
nis sue ieratura. Si vo eadem fuerint denominationes
minore et maiori tolle: 7 i cunctetur latitudo stelle. cui
quidem declinatio tropici victa fuerit cognomentum
suum tradet. Nam si ea vicer: declinationem stelle: lati
tudini contrarium nome i. culcabit. De si qua stella cum
altera sectionum equinoctialium ad eclipcedium perue
nire solet absq vlla declinatione: nunc exemplum con
tineas eam in ecliprica constitui rursusque te cie ingenio
arbitrabor. Ad alios igitur stellarum, situs inuenias per
vigiliam problema anguli meridiani 7 eclipcedi apud
punctum celi mediationis procurentem. Idcirco de
clinationem huiusmodi puncti celi mediationis: decli
nationemq ipsius stelle adducas. Que itaq: sunt eadem
denominatio: nec alteram et a tera minus. Et si diuersa
ritu erit: ut denominationes: eas in vnu collige: quodq
vel auferendo vel colligendo: sicut res posuit cuncti
cum angulo paus accepto: aut residuo eius de semicir
culo lateraliter tabule immittas. Numerus enim arcus
latitudinem stelle questum manifestabit. Idcirco autem la
titudo (si punctus celi mediationis fuerit in ecliprica bo
reali) semper erit septentrionaria quando declinatio stel
le aquilonia erit: superat declinationem puncti cum
quo ipsa celum mediat. Alias autem meridiana predica
bitur. Similiter puncto celi mediationis semicirculum
ecliprice aut initium possidente: id declinatio stelle meri
diana erit: superat declinationem puncti celi me
diationis: latitudo stelle semper erit meridiana. Alias vo
semper borealis. Idcirco notitas vt loci stelle hoc do
cumento aucupaberis. Ascensionem rectam que de
betur a: cui ecliprice inter vicinior tropicum 7 punctum
celi mediationis contento: cum complemento declina
tionis stelle lateraliter tabule inferes. quodq in angulo
comuni vt asolet colligetur: cum complemento lati
tudinis stelle areatim in tabulam duendo habebis in la
ere deicendenti distantiam veri loci stelle ab alterutro pun
ctum tropicorum. Jam ergo si scies an punctum celi
mediationis 7 locus versus stelle sint in eadem quarta ecy
pice an in diuersis: locus stelle verus non poterit igno
rari. Arcum enim nup. erit et tabula de: omni p. co
putabis ab eo puncto tropico qui cum vero loco stelle
eandem ecliprice quartam obtinet: siq ad ipsum verum
stelle perducis locum. Quarta aut ecliprice noli
acepias fortuito 7 vndeque erit: sed eas distat
que ad quatuor cardines id est duo tropica 7 duo equi
noctialia puncta declinat. Ceterum autem punctus celi
mediationis 7 versus stelle locus fin longitudine 30 dia
ci eandem ecliprice quartam possident an diuersas: ta
li experimento ostendimus. Alia nomen rectam qua pau
lo ante vi inuenis vna cum complemento marine decli
nationis solaris lateraliter in tabulam duendum: com
plementumq eius quod in angulo comuni efficitur: cum
maxima item solis declinatione areatim in tabulam mit
tentes in latere descendenti finistro arcum vt asolet in
uenimus: qui desumptus ex quadra circuli relinquet ar
gumentum locale. Hinc itaq argumentum locale conse
ras declinationem stelle. Nam si punctus celi mediatio
nis i semicirculo ecliprice boreali erit: declinatio

Stelle borealis fuerit quantacumq; aut meridiana: minor quidem dicto argumento locali: punctus celi mediatio- nis et locus stelle verus in eodem quadrante egyptice constituantur. Si autem declinatio meridiana memo- ratum argumentum locale superauerit: in diuersis quar- tis reperitur p̄cta predicta. Similiter si punctus celi mediatiois austrinam egyptice medietate possideat: et declinatio stelle meridiana fuerit quantacumq; aut bo- realis: minor quidem argumento locali: eadem egypti- ce quadra 7 verum stelle locum et punctum celi media- tionis recipiet. Si autem latitudo borealis predictum tale argumentum vicerit: in diuersis egyptice quartis prefata loca criserit. Et si hic quidem declinatio meridia- na: aut illic borealis argumentum locale equauerit: lo- cus stelle verus in altero punctum equinoctialium ba- bebis: in eo scilicet quod est in semicirculo egyptice stel- lam recipiente et ad tropicos desinente. Cuius predicto- rum hanc exemplarem accipe supputationem. Stella que- dam mediocelum cum sine recti gradus leonis. Cuius declinatio borealis sit gra. 27. mi. 49. Et etas sibi quip- iam exhiberi latitudinem eius stelle cuius vero loco in e- cliptica. Et punctus celi mediatiois borealem habet decli- nationem gra. 18. mi. 49. quam aufero et declinatione stel- le: quando quidem eadem sunt denominatione: et reli- quuntur gradus nouem. quos cum angulo egyptice et meridiani apud punctum celi mediatiois proueniente qui est grad. 75. minu. 41. lateraliter in tabula generali- dum mibi offertur latitudo stelle grad. 8. mi. 43. borea- lis quidem: q̄ declinatio stelle borealis exilis superet declinationem puncti celi mediatiois. Hunc locus ve- rus stelle queratur. Ascensio recta que debetur arcui e- cliptice inter caput cancri et punctum celi mediatiois co- lū est gra. 38. minu. 24. Quam cum complemento de- clinationis stelle gra. 62. minu. 11. lateraliter in tabulam duendo iuxta preceptū elicio gradus trigintatres: in- nūta decemcentouem. Hunc deinde numerum cum com- plemento latitudinis stelle grad. 81. minu. 17. arcum in tabulam mittenti mibi offertur grad. 33. mi. 45. distantia scilicet veri loci ab alterutro puncto tropicorum. Si itaq; ve- rus stelle locus: et punctus celi mediatiois in eadē e- cliptice quarta essent: iam nemo dubitaret quin verus stel- le locus in grad. 3. mi. 45. leonis existeret. At si in diuersis quartis deprehenderent: cū punctus celi mediatiois sit in quarta ciuiali: necessario elicio stelle verus in quadra autumnali id est gra. 26. mi. 15. corporis reperiret. Verū cum punctus celi mediatiois sit in semicirculo egyptice bo- realis: et declinatio stelle borealis existat: necesse est p̄m ante dicta verum stelle locum esse in eadem quarta cū puncto celi mediatiois. Et si stella habuisset declinationē meri- dianā: anceps fuisset de loco eius vero enunciatio. Qua quidē ambiguitate me expediret hoc pacto. Ascensionē rectā qua antebac vsus sum gra. 38. mi. 24. vna cū comple- mento marinis declinationis solaris gra. 66. mi. 30. mittenti in tabulā lateraliter: eliceret gra. 34. mi. 43. Huius numeri complementū gra. 55. mi. 17. cū marina declinatione solarī gra. 23. mi. 30. arcum deinde transferēdo in tabulā circuleret gra. 29. mi. 1. complementūq; huius gra. 60. mi. 59. vocarem ar- gumentum locale. Cui demū conferrem stelle declinationē meridianam. Nam si ipsa declinatio minor esset tali ar- gumento locali: proculdubio in eadem quarta reperirē- tur punctus celi mediatiois et verus stelle locus. Si autē declinatio superaret tale argumentum: in diuersis quar- tis constitueretur. Et si equalis esset declinatio tali ar- gumento: verus stelle locus in principio libree haberet.

Problema lvi.

Ignita latitudine cuiuspiam stelle: punctoq; celi mediatio- nis explorato: locum eius ve- rū in egyptica: declinationeq; ab equinoctiali circulo perquirere.

Hoc problema perquile est ad loca stellarum sira- rum inquirenda. Nam si aliquam earum in meridiano obseruaueris: mox punctum celi mediatiois coniecta- bis per noticiam loci solaris atq; temporis inspectio- nis tue respondentis. Latitudinem autē eius abiq; vltō supputationis dispēdio comparabis: si numeris istō lemei studiosissimi fidem habbas. Intra igitur arcum cum latitudine stelle et angulo quem meridianus cū e- cliptica apud punctum celi mediatiois complectitur. nu- merus in latere descendenti collectum serua: cum sua de- nominatione aquilonia vel austrina. Habebit autem nu- merus ille semper eam denominationē qua fuit p̄e posi- ta latitudo stelle. Et ostēda declinationem puncti celi me- diatiois addidit: cum sua item denominatione. Quam quidem declinationē iunge numero p̄ius seruato: si ea- dem vtrobique denominatio fuerit: et conerit declina- tio stelle quęstita: eam sumptura denominationem qua insigne erant partes sue. Verum si contrarietate decli- nationis puncti celi mediatiois et numerus antebac serua- tus diuersis fuerint denominationibus: minorem ex ma- iori deme: vt relinquatur declinatio stelle: seruata deno- minatione maioris numeri: vnde videlicet ficebat substra- ctio. Jam cum quo loco stelle inuestigando via parata est. Nam cum declinationem eius eposita doctrina mani- festet: punctus autem celi mediatiois ab initio suppo- situs sit: locum quoq; verum eius sū longitudinem 30. diaci non ignorabis: p̄cedentis problematis formula- memoretur teneris. Cuius res exemplo breuiscu- lo poterit illustrari: si stelle cuiuspiam latitudinem borea- lem ser gradū supposuerimus. Que quidem celum me- diet cum sine vigesimiquinti gradus tauri. Nam angu- lus meridiani 7 egyptice apud tale punctū prouenient septuagintafer gradus complectitur. Quem cum lati- tudine memorata gra. 6. minu. 0. arcum in tabulam fe- renti mibi offertur numerus ille grad. 6. minu. 1. borea- lis quidem q̄ latitudo stelle ad aquilonem vergat. Declinatio autem puncti celi mediatiois est grad. 19. mi. 4. et eadem borealis. Cui idcirco superaddere debeo gra. 6. mi. 1. vt collectus numerus gra. 25. mi. 15. prodat decli- nationē stelle: aquiloniam quidem q̄ vtresq; numerosq; con- iūctorū aquilonis cognouerit fuerit. Porro et iam nūc inuēta declinatio atq; puncto celi mediatiois iam dudū supposito locū stelle verū deinceps querere non tuat: ne contagio negatois afficiat: siquidem calculus p̄ce- dentis problematis abunde idipsum exprompsit.

Problema lvii.

Iantum egyptice quo cū stel- la quelibet oritur: iteq; punctū cum quo occidit in quavis re- gione artificiose rimari.

Inueni- as per lu- periosa problemata punctum egyptice cum quo stella

una celum mediat : ascensionēq; rectam arcus eclipyce ad tale punctū desinentis, quam etiam non iniuria ascensionem rectam stelle licet appellari. Scias item ex duodecimo problemate arcum semidiurnū stelle, cuius 7 semidiurnū equinoctialis: qui est nonaginta gradū diffērentia: que 7 ascensionalis diffērentia nuncupat. Ascensionē recte memorate adiungas: si stella declinationē meridiana habuerit. aut ex eadem minus 3. si septentrionariam obtinuerit declinationē. quodq; sic operando eueniet erit ascensio obliq; arcus eclipyce terminati ad punctum quod cum ipsa stella oritur. Hinc ergo ascensionē obliq; quantus eclipyce arcus debeatur / quemadmodum superius traditū est animaduerte. is enim eclipyce arcus ad punctum questū te perducet. Et si stella in equinoctiali fuerit: ascensio recta arcus eclipyce qui ad punctū celi medietationis definit erit 7 ascensio obliq; arcus eclipyce cuius finis cum ipsa stella oritur. Porro si arcū stelle diurnū tali ascensionē obliq; iamūc elicit adieceris constabit ascensio obliq; arcus terminati ad punctū eclipyce quod in horizonte orientali constituit dum stella ipsa occidit. Quo per ascensionē obliq; predictā cognito cognosces 7 punctus ei per diametrum oppositus cum quo videlicet stella tua occidit. Aalem etiā ascensionē obliq; habebis si ascensionē recte que arcui eclipyce ad punctū celi medietationis definit respoderit: id est recte ascensionē stelle quadrante circuli cū arcu stelle semidiurno adiunxeris. Et si differentiam ascensionalem stelle propōsitē habebis declinationē septentrionariam ascensionis sue recte adiunxeris: aut bini modū ascensionalem differentia stelle declinationē meridiana habebis et ascensionē recta dempseris: constabit aut relinquetur descensio obliq; puncti eclipyce cum quo stella ipsa occidit. que baud absurde descensio obliq; ipsius stelle nuncupabit. cui semicirculus appositus conficiet ascensionē obliq; ascendens per diametrum oppositi puncto eclipyce cum quo stella tua occidit. Quo ascendente cognito occidentalis quodq; punctus eclipyce cum quo videlicet stella occidit baud quāq; ignorabis. Et hoc oia per numeros exemplares fient lucidiora. Repetatur stella cui paulo superius locum dedimus in quinto decimo tauri gradu: cum latitudine aequilonia septem gradū, unde 7 declinationē quidē sortiebas gra. 23. m. 3. septentrionaria. Ascensionē vō rectā gra. 40. m. 18. Volo iam reddi certior quis eclipyce punctus cum ea oriat. in regione boreali que ab equinoctiali plaga remouetur. 48. gradibus. Per duodecimū igit problemā inuenio differentiam ascensionalem memorate stelle gra. 28. m. 12. extracta prius octia amplitudine gra. 35. m. 49. quemadmodū inibi precipiit. De diffērentia ascensionalis adiecta quodantū quomā declinatio stelle borealis est: constabit arcum eius diurnū gra. 118. m. 12. Idem enim semper numerus diffērentiam ascensionalem stelle metitur 7 differentiam arcus semidiurni sui semidiurnū equinoctialis. Hanc rursus diffērentiam aufero et ascensionē rectā stelle gra. 40. m. 18. 7 reliquū numerus ille gra. 12. m. 6. id est ascensio obliq; stelle: que etiam est ascensio obliq; respondens puncto eclipyce qui vna cum ipsa stella oritur. Is autē eclipyce punctus terminat gra. 24. m. 48. arctis: quoniam tanto arcui debetur ascensio obliq; memorata in latitudine 48. gradus. Hanc ad gradū stelle nostre occidētē calculus dirigatur. Arcus semidiurnus stelle erat gra. 118. m. 12. qui duplicatus conficit arcum diurnū gra. 236. m. 24. Eum adde obliq; ascensionē stelle gra. 12. m. 6. vt crescat summa gra. 248. m. 30. id est ascensio obliq; ascēditis dum stella occidit: que quidē ascēditis ipsum deponit grad. 20. m. 4. scōp. Cui per diametrum opponitur gra. 20. m. 4. tauri. Hunc itaq; arcus

extrema minutia in horizonte occidit vna cū stella propōsitā solet consistit. Eam præterea ascensionē obliq; ascēditis dum stella occidit construximus si recte ascensionē stelle gra. 40. m. 18. adiunxerim arcum sui semidiurnū gra. 118. m. 12. cum quadra circuli 20. gradū. Et si stelle borealis propōsitē obliq; ascensionē nostre libeat et cetera ascensionē eius gra. 40. m. 18. diffērentia ascensionalis iamduum inuenta gra. 28. m. 12. adiecta cetera erit: sicq; constabitur arcus gra. 68. m. 30. Cui si amplius semicirculū adieceris: qui scilicet descensionē occidētis atq; ascensionē orientis diffērentiat: enatam iterum videbo ascensionē obliq; ascēditis dum stella occidit gra. 248. m. 30. cuius officium baud quaquā ignotum esse arbitror.

Problemata lviij.

Et altitudinē stelle cuiuscūq; et distantiā horizontalem a meridiano atq; mediūz celi declinationem ipsius stelle 7 punctū

eclipyce cū quo celi mediat: indeq;

latitudinem et verum locum eius in

ecliptica subtiliter indagare. ¶ Intra

stātia horizontali a meridiano 7 cōplemento altitudinis stelle, quodq; dabit angulus cōmunis inuentum primi appellato. Cum cuius inuenti primi cōplemento 7 altitudinē stelle arcatim tabulam nostras ingredere. Et eo qd in latere descendenti accipietur et nonaginta gradibus decessu: residuum vocabis inuentum secundum. Quod quidem cōplemento altitudinis poli adiacens si distantia horizontalis a meridiano minor quadrante fuerit. si vō maior eo reperietur: inuentum secundum et cōplemento altitudinis polaris: aut viceversa minus scilicet a maiori auferas. 7 quicquid sine addito siue subtractio reddet inuentum tertium nuncupabitur. Intrando itaq; lateraliter cum cōplemento duorum inuentorum primi 7 tertii reperies in angulo cōmuni declinationē stelle questam: septentrionariam quidem si inuentum tertium minus quadra circuli fuerit. meridianam autem si maius ea erit. Et si equalē quodantū occurrit stella ipsa declinatione carebit. Verum si distantia horizontalis a meridiano nonaginta ad vnguem gradus completur: intranti tabulam lateraliter cum altitudine stelle et latitudine regionis offertur in angulo cōmuni declinatio stelle questā: borealis quidem semper in regionibus aequilonis: meridianā vō in habitationibus austrinis. Sub equinoctiali aut circulo nulla in hoc casu eueniet declinatio. Et si horizontali distantia a meridiano quadram circuli superet inuentum secundum cōplemento altitudinis polaris equalē occurrit: subtrahere inuentum primi et nonaginta gradibus. si namq; relinquetur declinatio stelle septentrionaria. Deinde autē vt punctus celi medietationis innotescat: intra tabulam arcatim cum ipso inuento primo 7 cōplemento declinationis stelle: quodq; in latere descendenti reperies ascensionē recte mediū celi adiungas si stella tua citra meridianum fuerit. aut ex eadem minus si meridianū transierit. et quod sic agendo eueniet erit ascensio recta stelle ascēditis arcus eclipyce desinentis ad punctum cum quo stella ipsa celum mediat. Extracto igit eo arcu quemamodū

supra docuimus perducere ad punctum cum quo stelle talis celum mediatur, id est quidem certa sunt vniuersa, licet quando distantia horizontalis a meridiano minor est quadrante circuli: vel quia maior quadrante, tamen inuentu secundum minus est complementum altitudinis poli, nam quia tale inuentu secundum minus est complementum altitudinis polaris: illud quod p. inuenitur primu et complementum declinationis areali introitu reperitur et semicirculo minus, quodque relinquitur ascension recte medij celi vt p. adiungas: vel et ea minus: veluti situs stelle respectu meridiani horarum. At si inuentu secundum et complementum altitudinis poli se equauerint: ascension recte medij celi quadrans circuli adiacens si stella nodu ad cardine regiu peruenit, aut ab ea demas: si eundem transierit. Ceterum stella proposita meridianu possidente absque vilo ferme dispendio voluntati tue satisfacies. Nam mediu celi notu bis supponit: vt ei inuentu ad quatuor horarum puulgata sit. Altitudo aut meridiani stelle ad elevatione equinoctialis circuli collata declinatione (si qua fuerit) manifestabit. Nam si huiusmodi elevationis supra horizontem fuerint equales: nullam stellam siue declinationem videri debet. Si autem elevatio stelle meridiani elevatione equinoctialis circuli supergrediat: differentia earu pro declinatione stelle boreali accipies. Et si viceversa elevatio equinoctialis altitudine stelle meridiani vicerit: differentia earum austrina stelle declinatione extemplo prodet. Idem declinatione aut stelle gradus, celi meditationis quo patet et latitudo stelle et verus locus eius in egyptica deprecando ante quinquagesimoque plemate satis lucubramus. C. Colozarii magnu. Cum siue stelle supra horizontem constitit locu veru in egyptica et latitudine eius (si qua habuerit) inuestigare poterimus non expectando si habet positionem eam meridiano, necq. astro labio annulari necq. rosetto aut alio quouis instrumento difficili opus est. veru sola meridiana linea sufficit cum instrumento qualicunq. ad elevationes stellaru accommodabili. Zinec naq. meridiane officiu erit ad distantia horizontalem stelle a meridiano deprecando: si paruo quoda adminiculo suffulta fuerit: id est circulo horizontali in gradus sexaginta et trecentos dimisso: quemadmodu in libro instrumentorum astronomicorum abundius tradet. Sed et mediu celi omni hora nemo nisi ruosum? nesciet inuenire. Idemto autem bec nostra precepta regionibus motarar septentrionalis accommodatu iri vbi stellaru motus considerari plerumq. soliti sunt. In habitationibus eni austrinis quibuscunq. alius cautunculus opus est: quas imprestentiaru missas facimus: q. in vsum nostru nunq. veture sunt. C. Predicetoz: exempli subdigeret libet. In regione latitudine habente 48. graduu celi mediu habeat. 17. gradus geminorum quod stella quodam altitudine habet antimeridianus gra. 63. m. 0. distantiaq. horizontalis a meridiano 3. 35. m. 0. Quid inquirere locu eius veru tam in longitudine q. etia latitudine. Id autem efficiam si prius declinatione eius exploretur punctus celi meridianus. Nam per quinquagesimiquintu pblem vero decinceps loco ei agnoscedo via paraf. Igitur distantia eius horizontalis a meridiano gra. 35. m. 0. cum complementum altitudinis stelle gra. 27. m. 0. lateraliter in tabulam mittenti mibi mor offerret inuentu primu gra. 15. m. 6. Cuius complementum gra. 74. m. 54. cum altitudine stelle gra. 63. m. 0. areatim demu in tabulam ducendo elicitur numerus ille gra. 67. m. 21. qui demptus erit quodam circuli relinquit inuentum secundu gra. 22. m. 39. Quic addo complementum altitudinis polaris gra. 42. m. 0. vt conseruat inuentu tertiu gra. 64. m. 39. Distantia enim horizontalis a meridiano minor est quadrante. Deinde complementum huius inuenti tertiu gra. 25. m. 21. cum complementum inuenti primu gra. 74. m. 54. lateraliter in tabulam transierit: et in

angulo communi sin precepta inuenio declinatione stelle gra. 24. m. 25. borealem: quoniam inuentu tertiu minus est quadrante circuli. Pro ascension rectam stelle hoc pacto metiemur. Complementu iam inuenite declinationis gra. 65. m. 35. cum inuenio primo gra. 15. m. 6. areatim tabule inferendo elicitur differentia ascensionu rectaru recte medij celi gra. 16. m. 37. quam addo ascension recte medij celi gra. 75. m. 52. sic cum colligitur ascension recta stelle gra. 92. m. 29. Cui debentur gra. 2. m. 16. cancri. finis igitur bui? arcus egyptice mediatur celum cum stella proposita. Et quo demum coassumpta declinatione iam dudum cognita: si rite memineris que in quinquagesimo quinto problemate tradita sunt: verum locu stelle sin longitudine in egyptica latitudineq. ei addidit. Sed ad eam rem non est opus puncto celi meditationis: cum satis sit nouisse ascensionem eius rectam: que et ascension recta stelle dicitur. Reliquos vo casus cum bac candem ferme supputationis formulam teneant missos facimus: ne ingenium tuum superuacua dictione remurmur.

Problema lix.

S vera loca duarum stellaru fixarum cognita fuerint cum latitudinibus suis: intercapedinem earu agnoscere. C. Est ante problema eoderm: de duobus quibuslibet locis in superficie terrena signatis: tamen cum vocabula hic et ibi diuersa sint: libet propriam problematis abolitionem conserbare: quo res ipsa cogniti facilius redderetur. Stellarum igitur latitudine sola differentium bic inter habebis distantiam si latitudine vnus et latitudine alterius demptis: dum eadem habuerint denominationem. nam si diuersa fuerint denominationes: eas in vnus congregare oportet vt conseruat intercapedo quessita. Si autem sola latitudines differentiam nullam habentes latitudinem: distantiam earum arcus egyptice duobus locis veris interclusus manifestabit. At si latitudines habent equales: subtrahere longitudinem vnus earum a longitudine alterius: minorem videlicet a maiore: vt remaneat differentia longitudinalis. Quid autem longitudinis stelle distantiam veri loci sui in egyptica a capite arectis. Deinde intra tabulam nostram lateraliter cum dimidio dicte differentie longitudinalis et complementum latitudinis vtriusvis stellarum. nam duplum eius quod in angulo communi occurrit intercapedinem stellarum quessitam metitur. Et si latitudines inaequales habent stelle propositae eisdem quidem denominationis: intra lateraliter cum tota differentia longitudinali et complementum latitudinis maioris. quodq. in angulo communi offerret inuentum primu nominabis. Cuius inuentu complementum cum latitudine maioris areatim in tabulam mittas. numeri enim in latere descendenti sinistro occurrit complementum et complementum latitudinis minoris demptu relinquet inuentu secundu. Complementa itaq. horu inuentoz lateraliter in tabulam ducendo habebis in angulo communi intercapedinem stellaru qua querebas. Latitudinibus autem variis denominatione habetibus intra vt prius lateraliter cum complementum latitudinis borealis et differentia longitudinalis: vt angulus communis prebeat tibi inuentum primu. Cuius decinceps inuentu complementum cum latitudine septentrionalis tabule areatim inferas. numerus enim lateris sinistri descendenti adiecto latitudini meridiana

inuentū secundū conficiet. Cū quo rursus inuenit. q. p. mo vt supra procedendus est. Quod autē de stellis fixis bacter' explanatū est: planetarū quoq. locis ac quibus libet duobus punctis inue in celo stellato assignent sine in primo mobili poterit accomodari. Que res plurimo erit momento in obibus luminosis stellarum infra quos fieri dicunt applicationes: in dationibusq. annor quas mutuat iudices pertractant: itēq. radiationib. stella rum. Quamobrem baud inepte subiungendū videt pro blema radiationū. Sed prius exempli presentis pble matis accipiendū est. Proponantur due stelle: quarū prima quidem locum habeat in fine quiti gradus tauri: secunda vō in fine tertij z vigesimi gradus eiusdē signi. variisq. autē latitudo borealis. 14. gradus complectat. Quero intercapedine dictarū stellarū. Inter quantum itaq. tauri gradū z vigesimū iterū reperit differentia longitudinalis. 18. gradū. Cuius dimidium gra. 9. m. o. cum completō latitudinis gra. 7. 5. m. o. lateraliter in tabulam duco: z in angulo cōmuni offendo gra. 8. m. 44. Hic numerus duplicatus conficit gra. 17. m. 28. interca pedine stellarū queitā. Ceterū stelle propōite statuant in locis pristinīs sū longitudinalis zodiaci. Prima autē latitudo borealē habeat gr. 25. m. o. secunda vō gr. 1. m. o. Itē intercapedine earū dimensurus: cū differentia logi tudinali gra. 18. m. o. z completō latitudinis maioris gra. 65. m. o. lateraliter ingrediēdo tabulam elicio gr. 16 m. 16. inuentū primū. Cuius deinde completū gr. 73. m. 44. cū ipsa maior latitudine gr. 25. m. o. arcum in ta bulam traductū mihi offertur numerus ille gr. 26. m. 7. Huius complementū gra. 64. m. 53. aufero et cōplemen to latitudinis minoris gra. 77. m. o. vt remaneat inuentū secundū gra. 13. m. 7. Cuius postremo completū gra. 76. m. 53. cum completō inuentū primū gr. 73. m. 44 per laterā tabule introducēdo expromitur intercape do stellarū queitā gra. 69. m. 12. Reliquis autē casus q. alterā quidē stellarū ad septentriones statuit: alterā vō ad austrum nihil pene mutat: nisi q. numerū secundo in troitu scilicet arcu et plicatū latitudinē austrine adiungit vnde pdeat inuentū secundū. Cetera vniuersa sicuti a dūm abfoluenda sunt.

Problema lx.

Rediorum protectionem ratio nabiliter definire. Quis negotij speculationē in cōmentariis quidem astrono micis abunde inuenies. In libro autē directio num tabulam quāquā conuolūm: per quam explorat quoniam pertingat radius stelle latitudines octo gradū ab itinere solari nō egrediētis. Hic vō vni uersaliter trademus vbi nam radiationes stellarū quan tēq. latitudines definant in egypticā: si modo egypti cam attingere possunt. Nam si stella quecūq. habuerit latitudinē maiore sexaginta gradibus: radius eius beta gonis verbigratia nequaquā percutiet egypticam. Si autē sexaginta gradus ab vnguem complectit: radius beragon' in loco longitudinis desinit. At si latitudo mi nor fuerit sexagenario nūero: circulus radiationis beta gonis secabit egypticam in duobus punctis equaliter a vero loco stelle sū longitudinē vtrius remotis. Quorū nempe punctorum distantiam ab ipso vero loco longi tudinis stelle in presentia querere pergitur. Circulū autē radiationis beragonis voco cum a cuius circumferentia stella aut locus eius versus in superficie primi mobilis vni usq. distat sexaginta gradibus. In radiatione autē qua

drangula huiusmodi distantia est nonaginta gradū. et in radiatione trigona. 120. gradū. Cum igitur volue ris scire quoniam stella queuis latitudinē habens radiū suū beragonū aut trigonū pprociat intra tabulā arcum cum triginta gradibus z complemento latitudinis stelle. numerus enim qui in latere descendenti occurrat erit quadrante dempsit pro radiatione quidem berago na: aut quadranti adiectus pro radio trigonali suscita bit interuallum radiationis quo querebas: computan dum quippe a loco vero longitudinis stelle sū successio nem quidem signorū pro radiatione sinistra: sed contra signorū seriem pro radiatione dextra. vbi enim numerat io talis desinit: illac porrigitur radius quem tractare cepisti. Interuallum autē radiationis quadrante semper nonaginta complectitur gradus: sine latitudinem stella habeat sine non. Stella postremo quecūq. solari orbita recipitur interuallū radiationis quidē beragonis semp habet sexaginta gradū. radiationis autem trigone vige niti z centum. Exemplaris autē numeratio p̄dicto rum talis erit. Sit quedam stella in septimo gradu ge minorū habens latitudinē octo graduum. Volo reedi certior quantū distet finis radiū sui beragoni a vero loco ipsius stelle in egyptica. Itaq. complementū latitu dinis eius gr. 82. m. o. vna cū 30. gradib. arcum mitto in tabulā: z elicio sū preceptū gr. 39. m. 20. Hunc arcum demo et. 90. pro radiatione beragona. z eūdē autē 90. gradib. pro radiatione trigona. Zōgitudo igit berago ne quidē radiationis inuenit gr. 59. m. 40. radiationis aut trigone. 120. m. 20. quartū vtrāq. vtrius a vero loco stelle id est a fine septimi graus geminorū cōputada est.

Problema lxi.

Intervallū apparitionis aut occultationis stelle perscrutari. Interuallū apparitionis vocat arcus egyptice soli z stelle primū apparenti interiacens. Interuallū aut occultationis est arcus egypti ce q. claudis inter solē z stellā occultari incipientē. Hui rei p̄pauca habet cognitio. Ceterū tabulā apparitionis atq. occultationis quib. erraticarū quā p̄tuleris in ter do decimo libro ma. ne p̄structionis ad clima mediū cō tēruit: p̄inde q. q. generalē ceteris etiā climatib. accomo dant: rem. p̄fecto abientācia facientes: cū apparitionē atq. occultationē inete ad alias regionū latitudes alie necessario habeant. Itā cū planetarū z retrogrēssione patiunt: sūti quib. visiois arcū habeat certū: z in oi re gione eūdē. videretur: q. de cō gradus. ven' aut quib. stella martis vnde cā dimidiū ferunt. caput occē. z ias turū vnde cū p̄p̄ variorū in angulis arcū inclinationis egyptice z beragoni apud eadē puncta ipsi egyptice p̄e m̄tes nunc q. de accelerat apparitio vel occultatio. nūc vō. perastatū. Arcū aut visiois dicim' porzione circuli magni p̄ v̄icē regionis q. cū soli solare iteō. q. inter borei zonē z solē sūb cō certū cōprehēdit vbi stella primū apparet aut occultat. Itaq. arcus in p̄mptu habēd' est. Deinde si ad apparitionē maturū vbi occultationē me ditandam appellis animū. per. 21. problema dicit angu lū egyptice z beragonis q. apud stellē locū. puenit. cū q. z arcū visiois intra tabulā arcum. habebis enī in latere descendēt arcū egyptice que interciderē oportet soli z vero loco stelle appere aut occultari incipiet. Idro appa ritionē aut vbi occultatioē vel p̄stina scias et memorato p̄tōtate angulū q. sit et egyptica z beragonis occedatū apud locū stellē. cū angulū arcū in nō superat q. dōz circuli:

punctū conficitur per antedicta problemata elicias. **3o** cum angulus inuerti fuerit cognomenū illi iam dūcitur viriputit. Quis deniq; fructus problemati buius operisq; recti intelligitur. Quando intertrapido loco rumpi solis 7 stelle propositae ad bora considerationis tua intervalum p̄dictum equauit: scies instare apparitionē aut occultationē stelle; vtram videlicet querieris. et si distantia locorū minor fuerit buniemodi intervallo stellis illi propinquantibus p̄teritis occultationē, aut a se recedentibus futuram esse apparitionē pronuntiabis. Quoties uo talis distantia locorū maior existat intervallo memorato stellae aut scilicet propinquantibus: futuram esse occultationē: aut a se recedentibus p̄teritis apparitionē coniectabis. Excessu autē tali diuiso per inperationē motuū diurnū p̄o stella directa. aut per congeriē comē motuū p̄o stella retrograda: elicit nūmerus dīcitur qui inter boram cōsiderationis tue 7 tempus passionis quiesce continet. Verū qui hoc folio contentus esse uolet: q̄ fiat an stella quēpiam prope solem constituta mane possit uideri an non longe breuius atq; facilius uoluntati se respondebitur per vigesimū p̄mū problema disceret anguli clyptice 7 horizonis circulares qui sit apud locū stellae ceteris latitudinib; apud punctū clyptice cum quo stella ipsa latitudine habenda uisitur. deinde autē laterali tabulam ingressus fuerit cum dicto angulo 7 arcu clyptice quem locus solis 7 locus stelle aut punctus cum quo ipsa uisitur interduciat. nam qui in area tabule vi aīolet colligetur numerus ad arcum uisionis collatus rem oēm p̄det. Quippe si fuerit minor ipso arcu uisionis: frustra oculos ad stellam mane uideam quēpiam aperiet. Si uo equalis et exi terit: iam iam articulus apparitionis aut occultationis esse coniectabit. Et autē numero arcū uisionis superat et stellam mane speculari poterit: modo horizonē habebat expositum. Non aliter ratio canōndū erit circa passionē ferotiam: assumpto dūtaxat angulo clyptice et horizonis occidentalis. Etiam ad exempla (si lubet) aures arge. ¶ Ponat stella mercuri in ferto gradu uirginis abscis latitudine. Tolo quere intervalū apparitionis eius matutine aut occultationis in regione capitolis uirinus ortu tollit quadraginta octo gradibus. Inuenio per vigesimū p̄mū buius problema angulum clyptice 7 horizonis orientalis iuxta finē ferti gradus uirginis p̄uenientē grad. 62. m. 48. quem cum arcu uisionis mercuri gra. 10. m. 8. arcum in tabulam dūco: 7 in latere descendenti colligo intervalū passionis matutine gra. 1. m. 15. cui adiuugo ferto gradus uirginis: congregatur gra. 17. m. 15. 3. gatur mercurius in ferto gradu uirginis ceteris folie. 17. gradus 7. 15. minutias eiusdem signi emendo: mane uisitur per retrogressionē a sole contra signū fieri recessit. Aut mane occidit si progrediendo solem insecutur. ¶ Idari ferme supputationis modulo intervallo apparitionis uespertine ferto labor mercurio eandem locum quem prius occupare. Nam per vigesimū p̄mū item problema anguli clyptice 7 horizonis orientalis reperio grad. 19. m. 28. quem cum arcu uisionis gra. 10. m. 8. arcum in tabulam dūco: mibi offertur in latere descendenti intervalū passionis uespertine gra. 31. m. 26. tantum autē ab esse mercurius a sole nequit: ideo a hanc uisū in eo fira uesp̄ri uidebitur. Nam et si omnes caelestis remotiois mercuri a sole concesseris: puta equatiōē centri maximā gra. 4. m. 2. equatiōē centri argumenti summā gra. 21. m. 53. et equiōē folis maximā 5. 2. m. 10. q̄ tū uicineri non p̄t gra. 29. m. 5. ferme p̄stabis: numerū scilicet mōdo infernal lo iamūne requisito. Qui ergo mercuriū in p̄mis partib; uirginis latitudine carentē uesp̄ri uide reſat. Indit opera. ¶ Jam ceterum ponat uisus in principio articulo

cui demus latitudinē aequilonia gra. 6. m. 20. Quis pan-
lo maior est? si calculo credim? in talisitu sortiat. id tñ nō
interturbabit rationē nostrā quin potius praeferat
occultationē ei? vespitina? circa qua nūc vīabimur. De
clinatio itaq? stelle boreal? est 5. m. 48. Cui? cōplemētū
5. 84. m. 12. cū latitudinē regiōis 5. 48. m. areatim in ta-
bulā mitto vt eliciā inuentū primū 5. 48. m. 20. Deinde cū
distātia veri loci sui ab vtroq? tropico. 90. graduū mari-
mag? solō declinationē laterāliter intrando tabulā ipsiū
eiusdē maxime solaris declinationis numerū reperio 5. 23.
m. 10. quē rursus cū cōplemento declinationis stelle 5. 84.
m. 12. areatim in tabulam ferēti mibi offerēt numerus ille
5. 23. m. 38. q. demptus ex inuēto primo relinqt inuentū
secūdu 5. 24. m. 42. Quo deinceps laterāliter in tabulaz
missio cū cōplemento latitudinis stelle 5. 83. m. 40. ex eundē
ar? ille 5. 24. m. 32. Cui? cōplementū 5. 65. m. 28. vocabo
inuentum tertiū. Hoc ergo inuentū tertiū cū latitudinē
stelle 5. 6. m. 20. areatim in tabulā duendo eliciunt 5. 6.
m. 58. quos demū laterāliter cū inuentū secūdu 5. 24. m. 42.
in tabulā mittēti mibi offerēt intercapedo loci stelle 2. oc-
cidētis 5. 2. m. 54. Rursus cū inuentū tertiū 5. 65. m. 28. vi-
sionis 5. gradū areatim ingrediēdo tabulā eripio 5. m. 30.
intercapedinē solis 2. occidētis. et q. dēmo intercapedi-
nē stelle 7. eiusdē occidētis 5. 2. m. 54. vt relinquat inter-
nallū occultationis serotinitē 5. 2. m. 36. Vñ plectari po-
test? q? stella in principio arctis locū obtinet? sole in 5. 27.
m. 24. pīctū recto vesperti occultari incipit. Jā facile in
tellegis vt arbitror? qd ab initio bui? calculi cōmemora-
tū est. Nā si latitudo borealis 5. 6. m. 20. prutrit stellā cū
fulgore solis quoad cerni queat in occidente? maior lati-
tudo ampli? vtiq? pmouebit. Cū nūc passio matutine
demus operā. Genere itē caput arctis pīemēte: atq? a
vestigio solaris ad septentrionis regiōē vt pī?cedenti
cū inuentū primū est vt antebac circa occultationē vesp-
tinā 5. 48. m. 20. sed inuentū secūdu reperit 5. 71. m. 58.
addēdo videlicet illud ad inuentū pmū qd sup? et eo ab
latū est: quomā stella iterū in principio arctis statuitur
Hoc itaq? inuentū secūdu cū cōplemento latitudinis stel-
le 5. 83. m. 40. laterāliter in tabulā mittēdo: numerū an-
guli cōis gr. 70. m. 54. ex 90. gradib? auferēdo relinqt in-
uentū tertiū 5. 19. m. 6. Qd deinde tertiū inuentū cū lati-
tudine stelle 5. 6. m. 20. areatim in tabulā trāfferēti: 2. nu-
merū elicitū 5. 19. m. 43. rursus cū inuēto secūdu 5. 71.
m. 58. laterāliter in tabulā mittēti mibi offerēt intercapedo
ocis 7. loci veri stelle 5. 18. m. 42. Tale itē inuentū tertiū
5. 19. m. 6. cū arcu visionis 5. m. 30. areatim in tabulā
ferēs dicio 5. 15. m. 27. intercapedinē solis 7. boreoscopi
Quā minus ex arcu egyptice inter verū stelle locū atq?
boreoscopi cōpēdo 5. gr. 18. m. 42. vt relinquat internallū
apparitionis matutine 5. 3. m. 15. Nūc ergo colligis
venerem in arctis principio ac in una pene epycli sui
parte cōstitutā mane videri posse sole gradus. 26. 7. minu-
tias. 45. pīctūz obtinēte. Qd mirabile admodū videbis!
nisi tantaz stelle latitudinē imbi cūcienē? aiaduēteris.
siquidē globus solaris locū stelle verū in egyptica oriē-
do pīcitur. Illud autē multo inusitatus iudicabitur:
bia eodē die naturalis stellā venērē mortaliūbus posse illu-
cescere: nunc qdē vespī post solē occasum: nūc autē mane
nōdū orto solē. Nā si ponat vbi grā hoc mane stella ve-
neris pīcētiā epycli partē crītes in principio ar-
ctis: sol aut gradus. 26. 7. minutias. 45. pīctū vī amplius
parū cūenitū sit stellā ipsa videri potuit: quāmodū
iammū expōsitū est. In eo autē sit motus stelle diurnū
retrogressiōē. 36. fere minutias vni? gradus cōplectit.
Vñ 7. in spacio duodecim borearū eqūlū: id est eo ferme tpe
qd ab besterno occasu ab ortū boierū efflurit. 18. mi-
nutis retrocedit? sole pīcē cōgnoscit? circūlū cōstituto
atq? interea dimidiū pene gradū excurrēte. Quamobzē

si bodie internallū apparitionis matutine id est interca-
pedo solis 7. loci stelle fuit 5. 3. m. 15. besterno vespī locū
vera stellarū quattuor pīcē gradibus distabant. Su-
perius autē eliciunt internallū occultationis 5. gr. 2.
m. 36. qd quidē stelle postrema permittit lucem: vt quan-
tulūq? saltē oculis cernatur. Multo igitur magis in-
tercapedo quattuor gradūū id efficiet? siquidē stella bo-
rizontem occidū possidentē solem amplius depīmit:
atq? id circo radio? debiliores ad stellē regiōē trāsmis-
tere oportet. Hūic demū enūciatio inusitate cōfirmā-
tio non deerit: si hoc mane quidem stellam vt antea po-
suerimus in principio arctis ac egyptica septentrionis
versus remotam gradibus sex ac tertia parte vnius: so-
lem autē in fine vigeimī septimi gradus pīctū. Nā stel-
la oritur cum grad. 11. m. 18. pīctū: vbi angulus egypti
ce 7. boreis orientis gradus. 19. m. 6. ferme constituitur:
quantū videlicet superius erat inuentū tertiū: dum
de ortu differret. Intercapedo autē solis 7. pīcti cū
quo stella oritur est gr. 15. m. 42. Quam vna cum angu-
lo memorato gr. 19. m. 6. laterāliter in tabulam mittēs
eripio grad. 5. m. 5. depressionem scilicet solis sub bo-
rizontē. que cum superet arcum visionis grad. 5. m. 30. stel-
lam mane iuxta boreizontem videri posse pīcīpū. Hesterno autē vesperti loc? solis fuit quidē gr. 26. m. 30.
fere pīctū. venteris aut gr. 29. m. 42. cōrēndē. Stella oc-
cidebat cum grad. 11. m. 37. arctis: vbi angulus egyptice
et boreis orientis occidū fiebat gr. 65. m. 28. pīcē. is cum
supra qd de occasu agerēt inuentū tertiū nomen vīrpa-
uit. Intercapedo autē solis ac pīcti pīcti cū quo stel-
la occidebat erat gr. 6. m. 7. quā si laterāliter in tabulam
duroer vna cū angulo pīctio gr. 65. m. 28. colligā in
arca tabule vt assolēt gr. 5. m. 34. fere: arcū videlicet cir-
culi verticalis qui inter solem iam occasum 7. boreizontē
occidū claudis. quo quidem arcū visionis superante li-
quet stellā venērē in eo situ cerni potuisse. Sic qd vulgo
mirabile pīcēat? solem vespertis sero quidē inseques /
mane autē post sero quidē pīcēntis oculis illucere? po-
test. Cui? rei eteplaris supputatio postrema qd pblema
tis interpretamentū illustrant. Hacten? generalis qdā
pblematū pteritū lūm. pīctis enī mīllas pīcēas
stellarū motus insperim? q ab occidēte in orientē pīcēos
solent. sed plurimū circa supremi celī mutationē queq?
eā cōsequūt vīati sum? Nūc autē vicin? ad stellarū mo-
tus pīcēos accēdere libet. q cū pīcēas a motu celī stel-
lati perinde qsi principio quodā cōi depēdēt: nec v-
lo mō absq? eius noticiā cōpēdēdi possint: iure pīcēas
pres illi orbi tradere debem? Idipm q? expōsitū sit
huiusmodi spībere. quādoquidē sub pīmo celo (veluti
pīcēas pīlosofīa docet) pīrimū obtinet sedem.

Problema

lxij.

Equationem octauae sphaere pīnt
alfonsi fundamēta numerare.
Cādedius motus accessus 7 recessus octauae
sphaere hui? rei necessarius est. Eum igitur p
tabulam suam more permutato addidit.
Cui? si minor quadrante occurrat: idoneus
erit pīpositio nostro. Si autem maior eo: semicirculū
quidem non attingens: cum ex semicirculo demas: resi-
duū serua. Et si semicirculum exsuperant vincat: minor
adhibe trib? quartis aut. 270. gradib? crītes: subtrah
eo dimidiū circulum: quodq? remanebit caudi. Si
vero tres quadras superauerit: cum ex tota differētia
minuas: residuūq? animaduerte. Quicquid igit aliquo

istorum quattuor modorum veluti res hortatur cunctis
tabule lateraliter immittas cum arcu nouem graduum in
angulo nāq̄ cōmuni equationē offendēs quēlitās. Hoc
quidē pacto elicies equationē octauę spherę consonā et
quam prebet alfonſinus abacus. Verum huiusmodi
equatio nō respondet suppositioni quę alfonſius ipse et
alii ſecutores imittunt: quemadmodū in cōmentarijs
aſtronomiſis adnotauimus. Quod tolerādū ne fit in
parte: an penitus repēdendū/non et nunc locus
diſſerere. Ceterū an poſſit ipſa firmitudinē quāpiā
habere: tamen ſi vulgus aſtronomorū baud dubitet inibi
diffuſus lacubratur eſſe. Hūc autē perinde q̄ſi omnino
ſtabilitas ſit bec conſideratio de motu celi ſtellati/fermo-
nem faciemus/calculū expoliitū mathematicis demon-
ſtrationibus congruentē. Si ſigif equationē huiusmodi
de recte computare libet: motum acceſſus et reſeſſus (vt
vocalibus pertritis vtar) veluti ſuperius monitum eſt
precifas q̄ſi quādrante inferior fuerit: erit nonaginta gra-
dibus auſeratur. Et ſi maior eo: ſemicirculū aut nō attingens:
deme et eo quādrā circuli: reſiduūq̄ ſerua. Si autē
dimidiū circulū ſuperauerit: extra 270. gradus manens
ipſum erit 270. minutas. Quia tres circuli quādras vicerit:
erit eo 270. tollas: vt reſiduū operi futuro viſuēniat. Ita
merus itaq̄ aliquo dictorum modorum elicitus latera-
liter in tabulā ducat cum nouem gradibus numeris in
arca collecti complementum cum 81. gradibus arcuū
deinceps in tabulā tranſferas. quod enī in latere deinceps
deſcendi occurret: ex quādrā circuli deſcendū equationis
quēlite relinquet quantitatē: addendam quidem quādo
motus acceſſus et reſeſſus octauę spherę minor ſemicir-
culo ſupponitur. mittendam vō quādo maior. Dum
autē nullo modo repręſentat motus ille: nulla quoq̄
equatio reddi poteſt. Quod et accipere perhibet motu
acceſſus et reſeſſus ſemicirculū equatē. Qui ſi quādrā
circuli ad vnguem completitur: aut tres quādrantes:
maximam ſibi depoſit equationem nouem graduum: hic
quidē addendam: illic vō mittendam. Ceterū huius
problemati. ꝑdonatur argumentum octauę spherę: qđ
vocat in medium motum acceſſus et reſeſſus 75. graduum:
qui debetam equationē ſibi quipiā reddi poſcat. Quo-
niam itaq̄ argumentū illud eſt minus quādrante circuli
multo ipſum lateraliter in tabulam cum nouē gradibus:
quemadmodū primū hortatur modus: et elicio equationē
nem grad. 8. m. 41. fa. 22. Quia ſi ſim ſilum demonſtrationis
geometrice calculū ordinare inbeat: demā 75. gradus
argumētū et quādrā circuli reſtabunt gra. 15. m. o. quos
vna cum nouem gradibus lateraliter in tabulam ducēti
mibi offerunt numerus ille gra. 2. m. 19. Cuius cōplemen-
tum gra. 87. m. 41. cum 81. gradibus arcuū in tabulam
tranſferendū elicitur arcu ille gra. 81. m. 19. Cuius cō-
plementum gra. 8. m. 41. equationem manifeſtabit quēſi-
tam. Quos iterum prope cūenſe prius elicitū equatio-
nem tamen opus diſcuſum ſit. Verum ſi paulo curio-
ſior fiat ſuppūatio vſus ad ſecundas minutas: aliqua-
tula proſpecto differentia ſentietur.

Problema lxxij.

Equationem octauę spherę ſm cō-
ſiderationem Tebitū ſuppūtare.

Sciās primo mediū motū acceſſus et reſeſſus
octauę spherę per tabulam ſuam. Qui ſi minor quā-
drante fuerit ſeruetur. Si vō maior eo: minor quo-
dam circūferentia: ipſum erit 180. deme. Et ſi fuerit ma-
ior ſemicirculo: minor autē tribus quartis: et eo minue

ſemicirculū. Quas tres quādras ſi aliquando vicerit:
ipſum erit toto circulo auſer. quodq̄ ſic agēdo deprome-
tur lateraliter tabulę immittas cum quattuor gradibus
erit 17. minutas. arcūq̄ qui in angulo cōmuni occurrit cū
23. gradibus 7. 46. minutas in tabulam arcuū traduc.
habebis enim in latere deſcendēti equationē quēſitā
Addendam quidem quādo motus acceſſus et reſeſſus
minor eſt ſemicirculo. mittendam vō quādo maior. Hūc
quidē ratiūcula inuenitur equatio octauę spherę quas
lis eſt in tabulis toletanis et tabitur partim et ſuppo-
ſitione tebitū: quāvis aliquātulū a vero recedat. Quoniā
ſupponit angulum contentum ab equatore et clyptica
octauę spherę ſemper eſſe graduum 23. et minutorum 46.
Qui quidem angulus variat pro tempore ſortitur ma-
gnitudinem: ſi aſſertioni tebitū fides habenda eſt. Quia
omnino poſſit poſſitio eius de motu octauę spherę in-
niti velis: vt prædictam equationē agnoſcas et quitiſſi
me: hac via gradiendū eſt. Argumento octauę spherę
adde gradus vigintitres: minutas primas 33. cum ſe-
cundis 30. id eſt inclinationem clyptice ſic ad equino-
ctialem circulum aut totius quidem ſcēntia. quodq̄ col-
ligitur ſerua pro primo numero introituū ſi fuerit mi-
nus quādrante. Si vō fuerit maior quādrā circuli: mi-
nuitur ſemicirculo: ſubtrahit ipſum a dimidio circulo:
et reſiduū tene pro primo numero introituū. Et ſi ſe-
micirculū ſuperauerit extra tres quartas manens: ſe-
micirculū et eo minuas: reſiduū ſeruadū. Si deniq̄
tres quādrantes vicerit: tale collectum erit toto circulo
reſe: et reſiduū pro primo numero introituū ſerua.
Secūdo vō numerus introituū ſemper erit gradus
quattuor: cum minutas 19. id eſt ſcēntia metæ arcualis
parui circuli. Hos ergo numeros introituales in tabu-
lam lateraliter mittas. quodq̄ præbet angulum cō-
muni inuentū primum nuncupetur. Deinde eundem
numerū grad. 4. min. 19. cum complemento ſcēntia
eſt numeri quem antebac cō lateraliter in tabulam in-
ſiſti lateraliter deſcendi introduc: et complementum nu-
meri in latere deſcendēti vt aſſolet oblato vocalis in-
uentum ſecundum. Quod deniq̄ inuentum ſecundum
cum gradibus vigintitribus: minutas trigintatribus:
et ſecundis triginta lateraliter in tabulam tranſfer:
et numerum in arca occurrentem appellabis inuentū tertium.
Cum cuius inuentū tertium completēre ac comple-
mento inuentū ſecundū tabulam arcuū ingredere. nu-
merūq̄ in latere deſcendēti collectum vocalis inuen-
tum quartum. Illud inſuper quartum inuentū cum gra-
dibus vigintitribus: minutas primis trigintatribus:
et ſecundis triginta tabulę lateraliter immittas: et quod
in angulo cōmuni offeretur erit quādrante minuas: ſi
collectum erit quo ſuperius numerum introitualem pri-
mum eliciſti minus quādrante fuerit: aut minus tribus
quartis. Vel ipſum numerum anguli cōmuni quādrā-
ti adiungas: ſi tale collectum maior quādrante: minus
tribus q̄rtis circuli fuerit. Quodq̄ et huiusmodi ad-
ditione vel ſubtractione naſcetur veluti res poſtulat
rurſus inuentū primo adiungas: ſi collectū præſatum mi-
nus ſemicirculo erit: et. Aut et eo minue inuentū pri-
mū: ſi cōheres memorata ſemicirculū vicerit. quodq̄
altero horum modorum deprometur inuentum quintū
agnominabitur. Cum quo deinceps inuentū quinto: aut
reſiduū eius ad ſemicirculū: et complementum inuentū
tertiū tabulā intra lateraliter. Et enim quod in angulo
cōmuni accipitur et quādrā circuli ſumoto: reliquum
vocalis inuentū ſertus. Jam demū argumento octauę
spherę oporēt. qđ ſi minus quādrante fuerit ſerua. ſi plus: extra
qđ eſt ſemicirculū manēs: ipſum erit 180. minue: reſiduū
nō tato. Et ſi dimidiū circuli ſuperauerit: non dū tres q̄rtas
attingēs: minue et eo ſemicirculū: reliquūq̄ cuſtodi.

De si tres etiā qrtas vicerit: abiecto ex eo .160. gradibus
residua ferua. Tale itaq; seruatiū quadmodū res postu-
lat qd semidiametro parui circuli gr.4. minu. 19. laterali
introtu tabule infer. quodq; tibi in area tabule offert
inuentum septimū appellabis. Illud rursus inuentum
septimū cum inueto facto ar eatim in tabulam trans-
fer. habebis enim in latere descendenti equationem octa-
ne spbere quam querebas: addendam quidē dum argu-
mentum octane spbere minus est semicirculo. minuēda
vō quando argumentum tale semicirculo transcendit
Atque argumentū huiusmodi dimidiū circuli equāte
nulla prolixus est equatio: veluti etiam capite arietis stel-
lati principium itineris sui attingēte. Dum autē quadra
circuli vel simplicem vel triplicatā continet: maxime eq̃-
tionis numerum gra. 10. mī. 45. offēdes. ¶ Porro si argu-
mētum octane spbere completū gra. 66. mī. 26. fa. 30. aut
tantundem superaddit semicirculo: breuifcula quadā
supputatione. positiū effices. Intrabis enī laterali ter
cū g. 85. mī. 41. 4. gra. 66. mī. 26. scūdo. 30. Complementū
numeri hoc pacto elicitū rursus cū gra. 4. mī. 19. areatim
tabule inferes. quod nāq; in latere descendenti colligitur
laterali ter item cū gr. 66. mī. 26. scūdo. 30. tabule imissum
exproinet equationē octane spbere quēstam. addendā
quidem dum argumentū octane spbere continet gr. 66.
mī. 26. fa. 30. minuēda vō quādo tantundē addit sup
semicirculo. Illud autē non est cecutienti oculo pretereun-
dum: qd inuentum scetum superius elicitum ostendit ma-
gnitudinem anguli ab egyptica celi stellati ⁊ equino etia
li circulo comprehēsi: id est maximā solis declinationē
pro tempore existentē. Nam quoniam caput arietis stel-
lati in paruo circulo rotatur: quemadmodū secetatores
lebitū autumant: necesse est egypticam huiusmodi
quam appellat mobilem/ varias ad equinoctialem cir-
culum fortiri inclinationes. Preterea complementū in-
uentū secūdi (si quod fuerit) equale est distantie capitis
cancri fixi a capite cancri mobilis. Cū in exemplo cuncta
facilis videbunt. Sit argumentū octane spbere. 20. gra-
dū. quero equationē ei debita fm modum quo is vltus
est qui toletanas composuit tabulas. Intro laterali ter
cum argumento proposito gra. 20. mī. 0. ⁊ semidiametro
parui circuli gra. 4. mī. 19. elicio q; gra. 1. mī. 28. Quem rur-
sus numerum areatim in tabulam ducendo cum gra. 23.
mī. 46. inuenio equationem quēstam gra. 3. mī. 39. quāta
ferme in tabella equatozia octane spbere offēdit iuxta
20. gradus argumētū. Sed esthō argumentū octane spbe-
re. 45. gradū. cui fm exquisitionē formulam iungo g. 23.
mī. 33. fa. 30. vt concrecat numerus introitus gra. 68.
mī. 33. neglectis. 30. scūdo: quo calculus expeditior fiat
Cum itaq; cum gra. 4. mī. 19. laterali ter in tabulam dūcē-
ti mibi offertur inuentum primū gra. 4. mī. 19. tem cundē

numerum gra. 4. mī. 19. cum complemento secūi sui gr. 21.
mī. 27. laterali ter quoq; in tabulam transferēdo extrahi-
tur arcus gra. 1. mī. 34. Cui⁹ complementū gra. 88. mī. 26.
vocabo inuentum secundum. Quod deinde cum gr. 23.
mī. 33. laterali ter tabule inferēs elicio inuentum tertium
gra. 23. mī. 32. prope. ¶ Vnius complementum gra. 66. mī.
28. cum complemento inuenti secūdi gra. 1. mī. 34. areatim
in tabulam mittendo excipitur inuentum quartum
gra. 1. mī. 43. Quod rursus cum gra. 23. mī. 33. laterali in-
troitu tabule immisum elicit numerum istum g. 0. mī. 41.
Quem ex quadrāte minuo: quonā congruēs que ex ar-
gumento octane spbere et maxima declinationē fita ab
initio calculi huius nascebat/ quadrāte minor extitit.
sicq; relinquatur numerus ille gra. 89. mī. 19. Cui adingō
inuentum primū vt concrecat inuentum quintum g. 93.
mī. 20. Vnius residuū de semicirculo g. 86. mī. 40. quonā
ipsūmet maius est quadrante/ cum complementū inue-
ti tertij gra. 66. mī. 28. laterali ter in tabulam ducens ex-
pro mo gra. 66. mī. 14. Cuius complementū gra. 23. mī. 46.
inuenti tertij nōne vltur pabit. Id autē est magnitudo an-
guli ab egyptica mobilis ⁊ equinoctiali circulo compre-
hēsi: scilicet maxima declinatio solaris ad prēsentē celi
stellati habitudinem. Jam demō argumentum octane
spbere proposito gra. 45. mī. 0. cum gra. 4. mī. 19. latera-
liter in tabulam tradūcti mibi eribitur inuenti septi-
mū gra. 3. mī. 31. Quod postremo cum inueto facto
gra. 23. mī. 46. areatim tabule illatum exproimēt equatio-
nem octane spbere gra. 7. mī. 36. In abaco autē toletano
offēdit equatio. 45. gradibus debita gra. 7. mī. 36. fa. 35.
parumper a nostro calculo differēs. Stigitur tantulam
differentiam tanto tamq; vario labore indignam cen-
ses/ vtaris licet primo modo. qui et si rudisculus appa-
ret/ qd geometricam pretercat demonstratiōem: eam ta-
men radem ⁊ quasi indigetam supputationem debita-
te quadam nō inuicunda compeniat. Cū autē reliquā
precepti hui⁹ particularem exemplari numero illustrem/
ponatur argumentum octane spbere gra. 66. mī. 27. aut
gra. 246. mī. 27. in quo situ egyptica mobilis contingit
vtriusq; parui circulum. Quēstus igitur equationem
octane spbere intro tabulam laterali ter cum g. 85. mī. 41.
et gra. 66. mī. 27. elicio q; in area tabule numerum illum
gra. 66. mī. 4. Cuius item complementum gra. 23. mī. 56.
areatim in tabulam ducendo cum gra. 4. mī. 19. extrahi-
tur numerus ille gra. 1. 0. mī. 42. Quem postremo nume-
rum vna cum gra. 66. mī. 27. laterali ter in tabulam mit-
tens excipio equationē octane spbere q̃stā g. 9. mī. 48.

f 3 n 3 s

Canones in Tabulam Primi mobilis
Adagisti Joannis de Adōre regio
Germanie decoris
Sclictur Explicunt.

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
Arcus					Arcus					Arcus				
Defectus	g	m	fa	Lat. fer. tia	Defectus	g	m	fa	Lat. fer. tia	Defectus	g	m	fa	Lat. fer. tia
1	0	1	3	1 3	31	0	30	54	30 54	61	0	52	29	52 28
2	0	2	6	2 5	32	0	31	48	31 47	62	0	52	30	52 58
3	0	3	8	3 9	33	0	32	41	32 40	63	0	53	28	53 27
4	0	4	11	4 11	34	0	33	33	33 33	64	0	53	27	53 55
5	0	5	14	5 13	35	0	34	25	34 24	65	0	54	23	54 22
6	0	6	16	6 16	36	0	35	16	35 16	66	0	54	49	54 48
7	0	7	18	7 19	37	0	36	6	36 7	67	0	55	14	55 13
8	0	8	21	8 21	38	0	36	56	36 56	68	0	55	38	55 38
9	0	9	23	9 23	39	0	37	45	37 45	69	0	56	1	56 1
10	0	10	25	10 25	40	0	38	34	38 34	70	0	56	23	56 23
11	0	11	27	11 27	41	0	39	22	39 21	71	0	56	44	56 44
12	0	12	28	12 29	42	0	40	9	40 8	72	0	57	4	57 3
13	0	13	30	13 30	43	0	40	55	40 55	73	0	57	23	57 22
14	0	14	31	14 31	44	0	41	41	41 40	74	0	57	41	57 40
15	0	15	32	15 31	45	0	42	26	42 25	75	0	57	57	57 58
16	0	16	32	16 32	46	0	43	10	43 9	76	0	58	13	58 13
17	0	17	33	17 32	47	0	43	53	43 52	77	0	58	28	58 28
18	0	18	33	18 32	48	0	44	35	44 35	78	0	58	42	58 41
19	0	19	32	19 32	49	0	45	17	45 17	79	0	58	54	58 54
20	0	20	31	20 31	50	0	45	58	45 57	80	0	59	5	59 6
21	0	21	30	21 30	51	0	46	38	46 37	81	0	59	16	59 15
22	0	22	29	22 28	52	0	47	17	47 16	82	0	59	25	59 25
23	0	23	27	23 26	53	0	47	55	47 57	83	0	59	37	59 33
24	0	24	24	24 24	54	0	48	32	48 33	84	0	59	40	59 41
25	0	25	21	25 21	55	0	49	9	49 8	85	0	59	46	59 47
26	0	26	18	26 18	56	0	49	45	49 44	86	0	59	51	59 52
27	0	27	14	27 14	57	0	50	19	50 19	87	0	59	55	59 55
28	0	28	10	28 10	58	0	50	53	50 53	88	0	59	58	59 58
29	0	29	5	29 5	59	0	51	26	51 26	89	1	0	0	59 59
30	0	30	0	30 0	60	0	51	58	51 57	90	1	0	0	60 0

EARTHES	ARCUS					Dif fere tia Late ralis	ARCUS					Dif fere tia Late ralis	ARCUS					Dif fere tia Late ralis
	Defcédentes.						Defcédentes						Defcédentes					
	g	g	m	fa	m fa		g	g	m	fa	m fa		g	g	m	fa	m fa	
1		0	2	6			31	1	1	48			61	1	44	57		52 28
2		0	4	11	2 6		32	1	3	35			62	1	45	57		52 58
3		0	6	17	3 8		33	1	5	21			63	1	46	55		53 27
4		0	8	22	4 11		34	1	7	6			64	1	47	51		53 55
5		0	10	27	5 14		35	1	8	49			65	1	48	45		54 22
6		0	12	32	6 17		36	1	10	32			66	1	49	37		54 49
7		0	14	37	7 19		37	1	12	13			67	1	50	27		55 14
8		0	16	42	8 20		38	1	13	52			68	1	51	16		55 37
9		0	18	46	9 23		39	1	15	30			69	1	52	2		56 0
10		0	20	50	10 25		40	1	17	8			70	1	52	46		56 22
11		0	22	54	11 26		41	1	18	43			71	1	53	28		56 43
12		0	24	57	12 28		42	1	20	17			72	1	54	7		57 4
13		0	27	0	13 28		43	1	21	50			73	1	54	45		57 23
14		0	29	2	14 30		44	1	23	21			74	1	55	21		57 40
15		0	31	3	15 31		45	1	24	51			75	1	55	55		57 57
16		0	33	4	16 32		46	1	26	19			76	1	56	26		58 13
17		0	35	5	17 31		47	1	27	45			77	1	56	56		58 27
18		0	37	5	18 31		48	1	29	10			78	1	57	23		58 41
19		0	39	4	19 31		49	1	30	34			79	1	57	48		58 54
20		0	41	2	20 30		50	1	31	55			80	1	58	11		59 5
21		0	43	0	21 29		51	1	33	15			81	1	58	31		59 16
22		0	44	57	22 27		52	1	34	33			82	1	58	50		59 25
23		0	46	53	23 25		53	1	35	50			83	1	59	6		59 33
24		0	48	48	24 23		54	1	37	5			84	1	59	12		59 40
25		0	50	42	25 21		55	1	38	17			85	1	59	33		59 46
26		0	52	36	26 17		56	1	39	29			86	1	59	43		59 51
27		0	54	28	27 13		57	1	40	38			87	1	59	50		59 55
28		0	56	20	28 9		58	1	41	46			88	1	59	56		59 58
29		0	58	10	29 4		59	1	42	52			89	1	59	59		59 59
30		1	0	0	29 58		60	1	43	55			90	2	0	0		60 0

ARCUS										ARCUS										ARCUS									
Defcédentes					Arcuales					Defcédentes					Arcuales					Defcédentes					Arcuales				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
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2	0	6	17	2 5	32	1	35	21	31 45	62	2	38	55	52 57	62	2	38	55	52 57	62	2	38	55	52 57	62	2	38	55	52 57
3	0	9	25	3 8	33	1	38	0	32 38	63	2	40	22	53 26	63	2	40	22	53 26	63	2	40	22	53 26	63	2	40	22	53 26
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5	0	15	41	5 13	35	1	43	13	34 22	65	2	43	7	54 22	65	2	43	7	54 22	65	2	43	7	54 22	65	2	43	7	54 22
6	0	18	49	6 15	36	1	45	46	35 14	66	2	44	16	54 47	66	2	44	16	54 47	66	2	44	16	54 47	66	2	44	16	54 47
7	0	21	56	7 18	37	1	48	18	36 4	67	2	45	41	55 13	67	2	45	41	55 13	67	2	45	41	55 13	67	2	45	41	55 13
8	0	25	2	8 21	38	1	50	47	36 54	68	2	46	53	55 37	68	2	46	53	55 37	68	2	46	53	55 37	68	2	46	53	55 37
9	0	28	9	9 22	39	1	53	15	37 43	69	2	48	2	56 0	69	2	48	2	56 0	69	2	48	2	56 0	69	2	48	2	56 0
10	0	31	15	10 24	40	1	55	40	38 32	70	2	49	8	56 22	70	2	49	8	56 22	70	2	49	8	56 22	70	2	49	8	56 22
11	0	34	20	11 26	41	1	58	4	39 19	71	2	50	11	56 43	71	2	50	11	56 43	71	2	50	11	56 43	71	2	50	11	56 43
12	0	37	25	12 27	42	2	0	25	40 6	72	2	51	11	57 3	72	2	51	11	57 3	72	2	51	11	57 3	72	2	51	11	57 3
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14	0	43	32	14 29	44	2	5	1	41 38	74	2	53	1	57 40	74	2	53	1	57 40	74	2	53	1	57 40	74	2	53	1	57 40
15	0	46	34	15 30	45	2	7	15	42 23	75	2	53	52	57 57	75	2	53	52	57 57	75	2	53	52	57 57	75	2	53	52	57 57
16	0	49	36	16 30	46	2	9	27	43 8	76	2	54	39	58 13	76	2	54	39	58 13	76	2	54	39	58 13	76	2	54	39	58 13
17	0	52	36	17 31	47	2	11	37	43 51	77	2	55	23	58 27	77	2	55	23	58 27	77	2	55	23	58 27	77	2	55	23	58 27
18	0	55	39	18 31	48	2	13	44	44 33	78	2	56	4	58 41	78	2	56	4	58 41	78	2	56	4	58 41	78	2	56	4	58 41
19	0	58	35	19 30	49	2	15	49	45 15	79	2	56	42	58 53	79	2	56	42	58 53	79	2	56	42	58 53	79	2	56	42	58 53
20	1	1	32	20 30	50	2	17	52	45 55	80	2	57	16	59 3	80	2	57	16	59 3	80	2	57	16	59 3	80	2	57	16	59 3
21	1	4	29	21 28	51	2	19	57	46 35	81	2	57	47	59 15	81	2	57	47	59 15	81	2	57	47	59 15	81	2	57	47	59 15
22	1	7	24	22 27	52	2	21	49	47 15	82	2	58	15	59 25	82	2	58	15	59 25	82	2	58	15	59 25	82	2	58	15	59 25
23	1	10	18	23 25	53	2	23	44	47 53	83	2	58	39	59 33	83	2	58	39	59 33	83	2	58	39	59 33	83	2	58	39	59 33
24	1	13	11	24 22	54	2	25	36	48 31	84	2	59	1	59 40	84	2	59	1	59 40	84	2	59	1	59 40	84	2	59	1	59 40
25	1	16	3	25 19	55	2	27	26	49 7	85	2	59	19	59 46	85	2	59	19	59 46	85	2	59	19	59 46	85	2	59	19	59 46
26	1	18	53	26 15	56	2	29	12	49 43	86	2	59	34	59 51	86	2	59	34	59 51	86	2	59	34	59 51	86	2	59	34	59 51
27	1	21	41	27 12	57	2	30	57	50 17	87	2	59	45	59 55	87	2	59	45	59 55	87	2	59	45	59 55	87	2	59	45	59 55
28	1	24	29	28 7	58	2	32	38	50 51	88	2	59	54	59 57	88	2	59	54	59 57	88	2	59	54	59 57	88	2	59	54	59 57
29	1	27	14	29 3	59	2	34	17	51 24	89	2	59	58	60 0	89	2	59	58	60 0	89	2	59	58	60 0	89	2	59	58	60 0
30	1	29	58	29 58	60	2	35	52	51 56	90	3	0	0	60 0	90	3	0	0	60 0	90	3	0	0	60 0	90	3	0	0	60 0

ARCUS					Dif fere tia Late ralis	ARCUS					Dif fere tia Late ralis.	ARCUS					Dif fere tia Late ralis.
Defectetes.						Defectetes						Defectetes					
	g	m	fa	m fa		g	m	fa	m fa			g	m	fa	m fa		
1	0	4	11			31	2	3	32		30 50	61	3	29	52		52 26
2	0	8	22		1 3	32	2	7	6			62	3	31	52		52 57
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4	0	16	44		3 8	34	2	14	8		32 37	64	3	35	41		53 53
5	0	20	54		4 10	35	2	17	35		33 29	65	3	37	29		54 21
6	0	25	4		5 13	36	2	21	0		34 21	66	3	39	13		54 47
7	0	29	14		6 15	37	2	24	22		35 11	67	3	40	54		55 12
8	0	33	23		7 17	38	2	27	41		36 2	68	3	42	30		55 36
9	0	37	31		8 19	39	2	30	58		36 52	69	3	44	2		56 0
10	0	41	39		9 21	40	2	34	12		37 41	70	3	45	30		56 22
11	0	45	46		10 23	41	2	37	23		38 30	71	3	46	1		56 43
12	0	49	52		11 24	42	2	40	31		39 18	72	3	48	14		57 3
13	0	53	57		12 26	43	2	43	37		40 5	73	3	49	16		57 22
14	0	58	1		13 27	44	2	46	39		40 51	74	3	49	11		57 40
15	1	2	4		14 28	45	2	49	59		41 37	75	3	50	41		57 56
16	1	6	6		15 29	46	2	52	38		42 22	76	3	51	49		58 12
17	1	10	7		16 30	47	2	55	57		43 5	77	3	52	58		58 27
18	1	14	7		17 30	48	2	58	2		43 49	78	3	53	0		58 41
19	1	18	5		18 29	49	3	1	17		44 32	79	3	54	45		58 54
20	1	22	2		19 29	50	3	4	47		45 13	80	3	55	50		59 5
21	1	25	57		20 28	51	3	7	40		45 55	81	3	56	21		59 16
22	1	29	51		21 27	52	3	10	27		46 35	82	3	57	48		59 24
23	1	33	43		22 25	53	3	13	4		47 13	83	3	58	40		59 33
24	1	37	33		23 23	54	3	16	37		47 52	84	3	59	12		59 40
25	1	41	22		24 21	55	3	19	2		48 29	85	3	60	29		59 46
26	1	45	8		25 17	56	3	22	49		49 5	86	3	61	5		59 51
27	1	48	53		26 15	57	3	25	22		49 42	87	3	62	15		59 55
28	1	52	36		27 11	58	3	28	14		50 16	88	3	63	40		59 58
29	1	56	17		28 6	59	3	31	12		50 50	89	3	64	11		60 0
30	1	59	56		29 1	60	3	34	7		51 23	90	4	0	0		60 0
			36		29 56			37	48		51 55						

ARCUS						ARCUS						ARCUS					
Defectus		Arcus				Defectus		Arcus				Defectus		Arcus			
g	m	fa	mi	fa	mi	g	m	fa	mi	fa	mi	g	m	fa	mi	fa	mi
1	0	5	14	13	1 2	31	2	34	22	28	30 48	61	4	22	18	31	52 26
2	0	10	27	14	2 7	32	2	38	50	4 25	31 41	62	4	24	49	2 25	52 55
3	0	15	41	13	3 8	33	2	43	15	4 22	32 34	63	4	27	14	2 20	53 24
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5	0	26	7	12	5 12	35	2	51	56	4 15	34 18	65	4	31	50	2 10	54 20
6	0	31	19	12	6 15	36	2	56	11	4 13	35 10	66	4	34	0	6	54 47
7	0	36	31	11	7 17	37	3	0	24	4 9	36 0	67	4	36	6	0	55 11
8	0	41	42	10	8 19	38	3	4	33	4 6	36 50	68	4	38	6	56	55 36
9	0	46	52	10	9 21	39	3	8	39	4 3	37 39	69	4	40	2	50	55 59
10	0	52	2	8	10 22	40	3	12	42	3 20	38 27	70	4	41	52	45	56 21
11	0	57	10	8	11 24	41	3	16	41	3 55	39 15	71	4	43	37	40	56 42
12	1	2	18	6	12 25	42	3	20	36	3 52	40 3	72	4	45	17	35	57 2
13	1	7	24	5	13 27	43	3	24	28	3 48	40 49	73	4	46	52	29	57 21
14	1	12	29	4	14 28	44	3	28	16	3 44	41 34	74	4	48	21	24	57 39
15	1	17	33	3	15 28	45	3	32	0	3 40	42 19	75	4	49	45	19	57 56
16	1	22	36	1	16 28	46	3	35	40	3 37	43 4	76	4	51	4	13	58 12
17	1	27	37	4	17 28	47	3	39	17	3 32	43 47	77	4	52	17	9	58 27
18	1	32	36	4	18 28	48	3	42	49	3 28	44 30	78	4	53	26	3	58 40
19	1	37	34	4	19 27	49	3	46	17	3 25	45 12	79	4	54	29	0	58 53
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21	1	47	24	4	21 25	51	3	53	2	3 15	46 32	81	4	56	18	0	59 15
22	1	52	16	4	22 23	52	3	56	17	3 12	47 12	82	4	57	4	0	59 25
23	1	57	6	4	23 21	53	3	59	29	3 7	47 50	83	4	57	45	0	59 33
24	2	1	54	4	24 18	54	4	2	36	3 2	48 28	84	4	58	21	0	59 40
25	2	6	39	4	25 16	55	4	5	38	2 59	49 5	85	4	58	51	0	59 46
26	2	11	23	4	26 12	56	4	8	37	2 53	49 40	86	4	59	16	0	59 51
27	2	16	4	4	27 8	57	4	11	30	2 49	50 15	87	4	59	35	0	59 55
28	2	20	42	4	28 4	58	4	14	19	2 45	50 49	88	4	59	49	0	59 58
29	2	25	18	4	28 59	59	4	17	4	2 39	51 22	89	4	59	57	0	60 0
30	2	29	52	4	29 53	60	4	19	43	2 35	51 55	90	5	0	0	0	60 0

TERMINES	ARCUS					Differe tia Late ralis.	ARCUS					Differe tia Late ralis.	ARCUS					Differe tia Late ralis.	
	Defectus.						Defectus						Defectus						
	g	m	fa	m	fa		g	m	fa	m	fa		g	m	fa	m	fa		
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2	0	12	32	2	5	32	3	10	31	18	31	62	5	17	44	2	52	54	
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5	0	31	19	5	12	35	3	26	5	7	34	16	65	5	26	10	2	54	19
6	0	37	34	6	14	36	3	31	21	3	35	7	66	5	28	47	2	54	45
7	0	43	48	7	16	37	3	36	24	4	35	58	67	5	31	17	2	55	11
8	0	50	6	8	18	38	3	41	23	4	36	47	68	5	33	42	2	55	35
9	0	56	13	9	20	39	3	46	18	5	37	37	69	5	36	1	2	55	57
10	1	2	24	10	22	40	3	51	9	4	38	26	70	5	38	13	2	56	20
11	1	8	34	11	23	41	3	55	56	4	39	13	71	5	40	19	2	56	42
12	1	14	43	12	24	42	4	0	39	4	38	0	72	5	42	19	1	57	2
13	1	20	51	13	25	43	4	5	17	4	37	40	73	5	44	13	1	57	21
14	1	26	57	14	25	44	4	9	50	4	39	41	74	5	46	0	1	57	39
15	1	33	6	15	26	45	4	14	19	4	40	25	75	5	47	41	1	57	56
16	1	39	14	16	26	46	4	18	44	4	40	43	76	5	49	16	1	58	12
17	1	45	22	17	26	47	4	23	4	15	41	45	77	5	50	44	1	58	27
18	1	51	30	18	26	48	4	27	19	4	40	44	78	5	52	6	1	58	40
19	1	57	38	19	25	49	4	31	29	4	41	45	79	5	53	22	1	58	53
20	2	2	56	20	24	50	4	35	34	4	41	50	80	5	54	31	2	59	4
21	2	8	49	21	22	51	4	39	34	3	42	31	81	5	55	33	0	59	15
22	2	14	39	22	21	52	4	43	29	3	42	47	82	5	56	29	0	59	24
23	2	20	27	23	19	53	4	47	19	3	43	45	83	5	57	18	0	59	33
24	2	26	12	24	16	54	4	51	4	3	43	48	84	5	58	1	0	59	40
25	2	31	55	25	13	55	4	54	43	3	44	49	85	5	58	37	0	59	47
26	2	37	35	26	10	56	4	58	17	2	45	48	86	5	59	7	0	59	51
27	2	43	12	27	6	57	5	1	45	3	45	50	87	5	59	30	0	59	55
28	2	48	46	28	2	58	5	5	8	3	45	50	88	5	59	47	0	59	57
29	2	54	17	28	57	59	5	8	26	3	46	51	89	5	59	57	3	59	59
30	2	59	45	29	52	60	5	11	38	3	46	51	90	6	0	0	0	60	0

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
Arcuales					Arcuales					Arcuales				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
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		7	19	1 3			6	15	30 43			6	3	31
2	0	14	37		32	3	42	10		62	6	10	38	52 23
		7	19	2 5			6	11	31 36			3	24	52 53
3	0	21	56		33	3	48	21		63	6	14	2	
		7	18	3 6			6	6	32 29			3	17	53 22
4	0	29	14		34	3	54	27		64	6	17	19	
		7	17	4 9			6	3	33 22			3	10	53 50
5	0	36	31		35	4	0	30		65	6	20	29	
		7	17	5 11			5	58	34 13			3	3	54 17
6	0	43	48		36	4	6	28		66	6	23	32	
		7	16	6 13			5	54	35 4			3	56	54 44
7	0	51	4		37	4	12	22		67	6	26	28	
		7	15	7 15			5	48	35 54			2	49	55 9
8	0	58	19		38	4	18	10		68	6	29	17	
		7	14	8 17			5	45	36 45			2	41	55 33
9	1	5	33		39	4	23	55		69	6	31	58	
		7	13	9 18			5	40	37 34			2	35	55 58
10	1	12	46		40	4	29	35		70	6	34	33	
		7	11	10 19			5	34	38 22			2	28	56 20
11	1	19	57		41	4	35	9		71	6	37	1	
		7	10	11 21			5	30	39 10			2	20	56 40
12	1	27	7		42	4	40	39		72	6	39	21	
		7	9	12 22			5	24	39 57			2	13	57 1
13	1	34	16		43	4	46	3		73	6	41	34	
		7	6	13 23			5	20	40 44			2	5	57 20
14	1	41	22		44	4	51	23		74	6	43	39	
		7	5	14 24			5	14	41 29			1	58	57 38
15	1	48	27		45	4	56	37		75	6	45	37	
		7	3	15 25			5	8	42 14			1	51	57 55
16	1	55	30		46	5	1	45		76	6	47	28	
		7	1	16 25			5	4	42 59			1	43	58 11
17	2	2	31		47	5	6	49		77	6	49	11	
		6	59	17 24			4	57	43 42			1	35	58 26
18	2	9	30		48	5	11	46		78	6	50	46	
		6	56	18 24			4	52	44 25			1	29	58 40
19	2	16	26		49	5	16	38		79	6	52	15	
		6	54	19 23			4	46	45 7			1	20	58 52
20	2	23	20		50	5	21	24		80	6	53	35	
		6	51	20 22			4	41	45 48			1	13	59 4
21	2	30	11		51	5	26	5		81	6	54	48	
		6	49	21 21			4	34	46 28			1	5	59 15
22	2	37	0		52	5	30	39		82	6	55	53	
		6	46	22 19			4	28	47 8			0	58	59 25
23	2	43	46		53	5	35	7		83	6	56	51	
		6	43	23 18			4	22	47 46			0	50	59 33
24	2	50	28		54	5	39	29		84	6	57	41	
		6	40	24 14			4	17	48 24			0	43	59 40
25	2	57	8		55	5	43	46		85	6	58	24	
		6	37	25 11			4	9	49 0			0	34	59 46
26	3	3	45		56	5	47	55		86	6	58	58	
		6	33	26 7			4	4	49 37			0	27	59 51
27	3	10	18		57	5	51	59		87	6	59	0	
		6	20	27 3			3	57	50 11			0	19	60 55
28	3	16	48		58	5	55	56		88	6	59	44	
		6	26	27 59			3	50	50 45			0	12	59 58
29	3	23	14		59	5	59	46		89	6	59	56	
		6	23	28 54			3	44	51 19			0	4	59 59
30	3	29	37		60	6	3	30		90	7	0	0	
		6	18	29 48			3	37	51 51			0	0	60 0

ARCUS					ARCUS					ARCUS				
Defécédtes.					Defécédtes.					Defécédtes.				
fa	Arcuales				fa	Arcuales				fa	Arcuales			
	g	m	fa	Diffé- ren- cia		g	m	fa	Diffé- ren- cia		g	m	fa	Diffé- ren- cia
1	0	8	21	1 2	31	4	7	8	30 39	61	6	59	30	52 20
2	0	16	42	2 4	32	4	13	46	31 31	62	7	3	31	52 50
3	0	25	2	3 7	33	4	20	50	32 25	63	7	7	45	53 20
4	0	33	23	4 8	34	4	27	42	33 18	64	7	11	9	53 48
5	0	41	42	5 10	35	4	34	43	34 9	65	7	14	46	54 17
6	0	50	8	6 12	36	4	41	32	35 1	66	7	18	16	54 42
7	0	58	19	7 14	37	4	48	16	35 52	67	7	21	37	55 8
8	1	6	36	8 15	38	4	54	55	36 41	68	7	24	50	55 33
9	1	14	51	9 17	39	5	6	28	37 30	69	7	27	56	55 56
10	1	23	5	10 19	40	5	7	57	38 19	70	7	30	51	56 17
11	1	31	18	11 20	41	5	14	19	39 7	71	7	33	41	56 40
12	1	39	29	12 21	42	5	20	36	39 54	72	7	36	22	57 0
13	1	47	39	13 21	43	5	26	47	40 41	73	7	38	54	57 19
14	1	55	46	14 22	44	5	32	52	41 27	74	7	41	17	57 38
15	2	3	52	15 22	45	5	38	51	42 12	75	7	43	32	57 55
16	2	11	55	16 22	46	5	44	44	42 56	76	7	45	39	58 10
17	2	19	55	17 22	47	5	50	31	43 39	77	7	47	37	58 26
18	2	27	54	18 21	48	5	56	11	44 22	78	7	49	26	58 40
19	2	35	49	19 21	49	6	1	45	45 4	79	7	51	7	58 52
20	2	43	42	20 19	50	6	7	12	45 45	80	7	52	39	59 4
21	2	51	32	21 18	51	6	12	33	46 25	81	7	54	3	59 15
22	2	59	19	22 15	52	6	17	47	47 4	82	7	55	18	59 24
23	3	7	2	23 14	53	6	22	53	47 44	83	7	56	24	59 32
24	3	14	42	24 11	54	6	27	53	48 22	84	7	57	0	59 40
25	3	22	19	25 8	55	6	32	46	48 58	85	7	58	10	59 45
26	3	29	52	26 4	56	6	37	32	49 34	86	7	58	49	59 51
27	3	37	21	27 0	57	6	42	10	50 9	87	7	59	20	59 55
28	3	44	7	27 55	58	6	46	41	50 44	88	7	59	42	59 58
29	3	52	8	28 50	59	6	51	5	51 17	89	7	59	55	60 0
30	3	59	25	29 45	60	6	55	21	51 49	90	8	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédentes					Defcédentes					Defcédentes				
g	m	fa	Defcédentes	Diff ferè tia	g	m	fa	Defcédentes	Diff ferè tia	g	m	fa	Defcédentes	Diff ferè tia
1	0	23	23	1 2	31	4	37	17	30 35	61	7	51	50	52 18
2	0	18	46	2 4	32	4	45	19	31 28	62	7	56	21	52 49
3	0	28	9	3 6	33	4	53	15	32 22	63	8	0	44	53 18
4	0	37	31	4 8	34	5	1	7	33 13	64	8	4	57	53 47
5	0	46	52	5 10	35	5	8	52	34 6	65	8	9	3	54 14
6	0	56	13	6 11	36	5	16	33	34 57	66	8	12	58	54 41
7	1	5	33	7 13	37	5	24	8	35 47	67	8	16	45	55 7
8	1	14	51	8 14	38	5	31	36	36 38	68	8	20	23	55 31
9	1	24	8	9 16	39	5	38	59	37 27	69	8	23	52	55 54
10	1	33	24	10 17	40	5	46	16	38 15	70	8	27	10	56 18
11	1	42	38	11 18	41	5	53	26	39 3	71	8	30	21	56 39
12	1	51	50	12 19	42	6	0	30	39 51	72	8	33	22	56 59
13	2	1	9	13 19	43	6	7	28	40 37	73	8	36	13	57 19
14	2	10	8	14 20	44	6	14	19	41 23	74	8	38	55	57 37
15	2	19	14	15 19	45	6	21	3	42 8	75	8	41	27	57 54
16	2	28	17	16 19	46	6	27	40	42 52	76	8	43	49	58 11
17	2	37	17	17 20	47	6	34	10	43 36	77	8	46	3	58 25
18	2	46	15	18 19	48	6	40	33	44 19	78	8	48	6	58 39
19	2	55	10	19 17	49	6	46	49	45 1	79	8	49	59	58 52
20	3	4	1	20 17	50	6	52	57	45 42	80	8	51	43	59 4
21	3	12	50	21 14	51	6	58	58	46 22	81	8	53	18	59 14
22	3	21	34	22 13	52	7	4	51	47 2	82	8	54	42	59 24
23	3	30	16	23 10	53	7	10	37	47 40	83	8	55	56	59 31
24	3	38	53	24 7	54	7	16	15	48 18	84	8	57	1	59 39
25	3	47	27	25 4	55	7	21	44	48 55	85	8	57	55	59 46
26	3	55	56	26 1	56	7	27	6	49 31	86	8	58	40	59 51
27	4	4	21	26 57	57	7	32	19	50 7	87	8	59	15	59 55
28	4	12	42	27 52	58	7	37	25	50 41	88	8	59	40	59 57
29	4	20	58	28 47	59	7	42	22	51 14	89	8	59	55	59 59
30	4	29	10	29 41	60	7	47	10	51 46	90	9	0	0	60 0

ARCUS					Diff fere tia	ARCUS					Diff fere tia	ARCUS					Diff fere tia
Arcuales					Late ralis	Arcuales					Late ralis	Arcuales					Late ralis
Defectus	g	m	fa	m	fa	Defectus	g	m	fa	m	fa	Defectus	g	m	fa	m	fa
1	0	10	25	1	2	31	5	7	52	30	31	61	8	44	8	52	16
2	0	20	50	2	4	32	5	16	47	31	25	62	8	49	10	52	46
3	0	31	15	3	5	33	5	25	37	32	17	63	8	54	2	52	16
4	0	41	39	4	7	34	5	34	20	33	10	64	8	58	44	52	45
5	0	52	2	5	8	35	5	42	58	34	1	65	9	3	17	54	13
6	1	2	24	6	10	36	5	51	30	34	52	66	9	7	39	54	40
7	1	12	46	7	11	37	5	59	55	35	43	67	9	11	52	55	5
8	1	23	5	8	13	38	6	8	14	36	33	68	9	15	54	55	30
9	1	33	24	9	14	39	6	16	26	37	22	69	9	19	46	55	54
10	1	43	41	10	15	40	6	24	31	38	11	70	9	23	28	56	16
11	1	53	56	11	15	41	6	32	29	38	59	71	9	27	0	56	37
12	2	4	9	12	16	42	6	40	21	39	46	72	9	30	21	56	58
13	2	14	19	13	17	43	6	48	5	40	33	73	9	33	32	57	17
14	2	24	28	14	17	44	6	55	42	41	18	74	9	36	32	57	36
15	2	34	33	15	18	45	7	3	11	42	4	75	9	39	21	57	54
16	2	44	36	16	17	46	7	10	32	42	49	76	9	42	0	58	10
17	2	54	37	17	16	47	7	17	46	43	32	77	9	44	28	58	24
18	3	4	34	18	15	48	7	24	52	44	15	78	9	46	45	58	39
19	3	14	27	19	15	49	7	31	50	44	56	79	9	48	51	58	52
20	3	24	18	20	13	50	7	38	39	45	39	80	9	50	47	59	3
21	3	34	4	21	11	51	7	45	20	46	19	81	9	52	32	59	14
22	3	43	47	22	9	52	7	51	53	46	59	82	9	54	6	59	23
23	3	53	26	23	6	53	7	58	17	47	37	83	9	55	29	59	32
24	4	3	0	24	4	54	8	4	33	48	15	84	9	56	40	59	40
25	4	12	31	25	0	55	8	10	39	48	53	85	9	57	41	59	46
26	4	21	57	25	56	56	8	16	37	49	29	86	9	58	31	59	51
27	4	31	18	26	52	57	8	22	26	50	4	87	9	59	10	59	55
28	4	40	34	27	48	58	8	28	6	50	38	88	9	59	37	59	58
29	4	49	45	28	43	59	8	33	36	51	11	89	9	59	54	59	59
30	4	58	51	29	38	60	8	38	56	51	45	90	10	0	0	60	0

ARCUS					ARCUS					ARCUS				
Defectetes					Defectetes					Defectetes				
Arcuales					Arcuales					Arcuales				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	11	27	1 1	31	5	18	23	30 27	61	9	36	24	52 13
2	0	22	54	2 3	32	5	48	12	31 20	62	9	41	56	52 45
3	0	34	20	3 5	33	5	57	54	32 13	63	9	47	18	53 14
4	0	45	46	4 6	34	6	7	30	33 5	64	9	52	29	53 43
5	0	57	10	5 8	35	6	16	59	33 57	65	9	57	30	54 10
6	1	8	34	6 9	36	6	26	22	34 48	66	10	2	19	54 37
7	1	19	57	7 10	37	6	35	38	35 39	67	10	6	57	55 4
8	1	31	18	8 11	38	6	44	47	36 28	68	10	11	24	55 28
9	1	42	38	9 12	39	6	53	48	37 18	69	10	15	40	55 52
10	1	53	56	10 13	40	7	2	42	38 6	70	10	19	44	56 14
11	2	5	11	11 14	41	7	11	28	38 55	71	10	23	37	56 37
12	2	16	25	12 14	42	7	20	7	39 42	72	10	27	19	56 59
13	2	27	36	13 15	43	7	28	38	40 28	73	10	30	49	57 17
14	2	38	45	14 14	44	7	37	0	41 15	74	10	34	8	57 34
15	2	49	51	15 14	45	7	45	15	41 59	75	10	37	15	57 52
16	3	0	53	16 14	46	7	53	21	42 44	76	10	40	10	58 8
17	3	11	53	17 13	47	8	1	18	43 28	77	10	42	52	58 25
18	3	22	49	18 12	48	8	9	7	44 11	78	10	45	24	58 38
19	3	33	42	19 11	49	8	16	46	44 54	79	10	47	43	58 52
20	3	44	44	20 9	50	8	24	18	45 34	80	10	49	50	59 5
21	3	55	15	21 8	51	8	31	39	46 15	81	10	51	46	59 14
22	4	5	56	22 5	52	8	38	52	46 54	82	10	53	29	59 25
23	4	16	32	23 3	53	8	45	54	47 34	83	10	55	1	59 33
24	4	27	4	24 0	54	8	52	48	48 12	84	10	56	20	59 40
25	4	37	31	24 56	55	8	59	32	48 49	85	10	57	0	59 47
26	4	47	53	25 53	56	9	6	6	49 25	86	10	58	0	59 51
27	4	58	10	26 48	57	9	12	30	50 1	87	10	59	5	59 55
28	5	8	22	27 43	58	9	18	44	50 35	88	10	59	18	59 59
29	5	18	28	28 38	59	9	24	47	51 9	89	10	59	53	60 0
30	5	28	29	29 32	60	9	30	41	51 42	90	11	0	0	60 0

LATRACUS					Diff fere tia	LATRACUS					Diff fere tia	LATRACUS					Diff fere tia
Arcuales						Arcuales						Arcuales					
Defcedetes.					Late ralis	Defcedetes					Late ralis.	Defcedetes					Late ralis.
g	m	fa	m	fa		g	m	fa	m	fa		g	m	fa	m	fa	
1	0	12 28			1 2	31	6	8 50			30 21	61	10	28 37			52 11
2	0	24 57			2 3	32	6	19 32			31 14	62	10	34 41			52 41
3	0	37 25			3 3	33	6	30 7			32 8	63	10	40 5			53 11
4	0	49 52			4 5	34	6	40 21			33 0	64	10	46 12			53 41
5	1	2 18			5 6	35	6	50 14			33 52	65	10	51 40			54 10
6	1	14 43			6 8	36	7	1 10			34 43	66	10	56 5			54 36
7	1	27 7			7 9	37	7	11 58			35 33	67	11	2 51			55 1
8	1	39 29			8 10	38	7	21 51			36 23	68	11	6 40			55 27
9	1	51 50			9 10	39	7	31 9			37 12	69	11	11 4			55 51
10	2	4 9			10 10	40	7	40 9			38 2	70	11	15 58			56 15
11	2	16 25			11 11	41	7	50 26			38 49	71	11	20 14			56 36
12	2	28 39			12 12	42	7	59 9			39 37	72	11	24 3			56 57
13	2	40 51			13 11	43	8	9 9			40 24	73	11	28 36			57 16
14	2	52 59			14 12	44	8	18 8			41 9	74	11	31 42			57 34
15	3	5 5			15 11	45	8	27 8			41 55	75	11	35 3			57 53
16	3	17 7			16 11	46	8	36 8			42 39	76	11	38 59			58 9
17	3	29 6			17 10	47	8	44 8			43 23	77	11	41 17			58 24
18	3	41 1			18 9	48	8	53 8			44 6	78	11	44 2			58 39
19	3	52 53			19 7	49	9	1 8			44 48	79	11	46 20			58 51
20	4	4 40			20 5	50	9	9 8			45 30	80	11	48 25			59 3
21	4	16 23			21 3	51	9	17 7			46 11	81	11	51 54			59 14
22	4	28 1			22 1	52	9	25 7			46 51	82	11	52 1			59 23
23	4	39 35			22 58	53	9	33 7			47 30	83	11	54 34			59 31
24	4	51 4			23 55	54	9	41 0			48 8	84	11	56 1			59 40
25	5	2 27			24 52	55	9	48 11			48 46	85	11	57 0			59 46
26	5	13 46			25 47	56	9	55 7			49 22	86	11	58 0			59 51
27	5	24 58			26 44	57	10	2 6			49 57	87	11	59 0			59 55
28	5	36 5			27 39	58	10	9 6			50 32	88	11	59 0			59 57
29	5	47 6			28 34	59	10	15 6			51 7	89	11	59 0			59 59
30	5	58 1			29 28	60	10	22 6			51 39	90	12	0 0			60 0

LATRACUS					LATRACUS					LATRACUS				
Defécédetes					Defécédetes					Defécédetes				
Arcalos					Arcalos					Arcalos				
g	g	m	fa	Diff fere- tia Late- ralis	g	g	m	fa	Diff fere- tia Late- ralis	g	g	m	fa	Diff fere- tia Late- ralis
1	0	13	30	1 1	31	6	39	11	30 16	61	11	20	48	52 9
2	0	27	0	2 2	32	6	50	46	31 10	62	11	27	22	52 39
3	0	40	28	3 4	33	7	2	15	32 2	63	11	33	43	53 9
4	0	53	57	4 4	34	7	13	35	32 54	64	11	39	53	53 38
5	1	7	24	5 5	35	7	24	48	33 46	65	11	45	50	54 6
6	1	20	51	6 6	36	7	35	53	34 37	66	11	51	32	54 33
7	1	34	16	7 6	37	7	46	50	35 27	67	11	57	2	55 0
8	1	47	39	8 7	38	7	57	38	36 18	68	12	2	19	55 25
9	2	1	0	9 8	39	8	8	18	37 7	69	12	7	23	55 48
10	2	14	19	10 9	40	8	18	50	37 55	70	12	12	13	56 11
11	2	27	36	11 9	41	8	29	12	38 44	71	12	16	50	56 33
12	2	40	51	12 8	42	8	39	26	39 31	72	12	21	13	56 54
13	2	54	2	13 9	43	8	49	30	40 18	73	12	25	22	57 14
14	3	7	11	14 8	44	8	59	24	41 4	74	12	29	16	57 34
15	3	20	16	15 8	45	9	9	9	41 49	75	12	33	0	57 50
16	3	33	18	16 6	46	9	18	44	42 34	76	12	36	27	58 7
17	3	46	16	17 5	47	9	28	9	43 18	77	12	39	41	58 22
18	3	59	10	18 4	48	9	37	24	44 1	78	12	42	41	58 36
19	4	12	45	19 3	49	9	46	28	44 44	79	12	45	26	58 50
20	4	24	45	20 1	50	9	55	22	45 25	80	12	47	58	59 1
21	4	37	26	20 59	51	10	4	5	46 7	81	12	50	14	59 13
22	4	50	2	21 56	52	10	12	37	46 47	82	12	52	17	59 23
23	5	2	33	22 54	53	10	20	58	47 26	83	12	54	5	59 32
24	5	14	59	23 50	54	10	29	8	48 4	84	12	55	40	59 38
25	5	27	19	24 47	55	10	37	7	48 40	85	12	57	0	59 45
26	5	39	33	25 43	56	10	44	53	49 18	86	12	58	4	59 51
27	5	51	42	26 38	57	10	52	28	49 55	87	12	58	55	59 55
28	6	3	44	27 33	58	10	59	51	50 30	88	12	59	31	59 58
29	6	15	40	28 28	59	11	7	3	51 2	89	12	59	53	60 0
30	6	27	29	29 22	60	11	14	2	51 36	90	13	0	0	60 0

ARCUS										ARCUS										ARCUS									
Defécédées.					Zatérales					Defécédées					Zatérales					Defécédées					Zatérales				
Arcuales					Arcuales					Arcuales					Arcuales					Arcuales					Arcuales				
g	m	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	mi	fa	
1	0	14	31	14	31	1	1			31	7	9	27	12	29	30	10			61	12	12	57	7	4		52	3	
2	0	29	2	14	30		2	1		32	7	21	56	12	21	31	3			62	12	20	1	6	51		52	36	
3	0	43	32	14	29		3	2		33	7	34	17	12	12	31	56			63	12	26	52	6	39		53	7	
4	0	58	1	14	28		4	3		34	7	46	29	12	5	32	49			64	12	33	31	6	25		53	35	
5	1	12	29	14	28		5	4		35	7	58	34	11	56	33	40			65	12	39	56	6	9		54	3	
6	1	26	57	14	25		6	4		36	8	10	30	11	47	34	31			66	12	46	5	5	57		54	31	
7	1	41	22	14	24		7	5		37	8	22	17	11	39	35	22			67	12	52	2	5	42		54	57	
8	1	55	46	14	22		8	6		38	8	33	56	11	29	36	12			68	12	57	44	5	27		55	22	
9	2	10	8	14	20		9	6		39	8	45	25	11	20	37	2			69	13	3	11	5	13		55	47	
10	2	24	28	14	17		10	5		40	8	56	45	11	11	37	50			70	13	8	24	4	59		56	10	
11	2	38	45	14	14		11	6		41	9	7	56	11	1	38	38			71	13	13	23	4	44		56	32	
12	2	52	59	14	12		12	6		42	9	18	57	10	51	39	25			72	13	18	7	4	29		56	53	
13	3	7	11	14	8		13	5		43	9	29	48	10	40	40	12			73	13	22	36	4	14		57	13	
14	3	21	19	14	5		14	5		44	9	40	28	10	30	40	59			74	13	26	50	5	0		57	32	
15	3	35	24	14	0		15	3		45	9	50	58	10	20	41	44			75	13	30	50	3	44		57	49	
16	3	49	24	13	57		16	3		46	10	1	18	10	9	42	29			76	13	34	34	3	29		58	6	
17	4	3	21	13	53		17	2		47	10	11	27	9	58	43	13			77	13	38	3	3	14		58	22	
18	4	17	14	13	49		18	1		48	10	21	25	9	47	43	56			78	13	41	17	2	59		58	36	
19	4	31	3	13	43		18	58		49	10	31	12	9	35	44	38			79	13	44	16	2	43		58	49	
20	4	44	46	13	39		19	57		50	10	40	47	9	25	45	21			80	13	46	59	2	58		59	2	
21	4	58	25	13	33		20	54		51	10	50	12	9	12	46	1			81	13	49	27	2	13		59	13	
22	5	11	58	13	29		21	52		52	10	59	24	9	0	46	41			82	13	51	40	1	57		59	22	
23	5	25	27	13	22		22	48		53	11	8	24	8	48	47	22			83	13	53	37	1	41		59	31	
24	5	38	49	13	17		23	45		54	11	17	12	8	35	48	0			84	13	55	18	1	27		59	40	
25	5	52	6	13	10		24	41		55	11	25	47	8	24	48	37			85	13	56	45	10	5		59	45	
26	6	5	16	13	4		25	37		56	11	34	11	8	12	49	15			86	13	57	0	55	0		59	51	
27	6	18	20	12	57		26	32		57	11	42	23	7	58	49	49			87	13	58	50	0	39		59	54	
28	6	31	17	12	51		27	28		58	11	50	21	7	44	50	24			88	13	59	0	24	0		59	57	
29	6	44	8	12	43		28	22		59	11	58	5	7	33	50	59			89	13	59	53	0	7		59	59	
30	6	56	51	12	36		29	17		60	12	5	38	7	19	51	31			90	14	0	0	0	0		60	0	

ARCUS						ARCUS						ARCUS					
Latitudes			Arcs			Latitudes			Arcs			Latitudes			Arcs		
Declinées			Latitudes			Declinées			Latitudes			Declinées			Latitudes		
g	m	fa	m	fa	m	g	m	fa	m	fa	m	g	m	fa	m	fa	m
1	0	15 32	1	0		31	7	39 37	30	4		61	13	5	0		
2	0	15 31	2	1		32	7	52 59	30	57		62	13	12 37	2	1	52 1
3	0	15 30	3	2		33	8	6 13	31	50		63	13	19 59	2	2	52 32
4	1	15 29	4	2		34	8	12 56	32	41		64	13	27 6	3	3	53 2
5	1	17 33	5	3		35	8	12 47	33	33		65	13	33 59	3	4	53 32
6	1	15 26	6	3		36	8	45 1	34	25		66	13	40 36	4	4	54 0
7	1	15 25	7	3		37	8	57 39	35	15		67	13	46 50	4	5	54 28
8	2	15 22	8	3		38	9	10 8	36	5		68	13	53 6	5	5	54 54
9	2	15 19	9	3		39	9	22 27	36	54		69	13	58 58	5	6	55 20
10	2	15 18	10	3		40	9	34 35	37	44		70	14	4 34	5	7	55 44
11	2	15 14	11	2		41	9	46 34	38	32		71	14	9 55	5	8	56 8
12	3	15 11	12	2		42	9	58 22	39	19		72	14	15 5	5	9	56 30
13	3	15 8	13	2		43	10	10 0	40	5		73	14	19 49	5	10	56 51
14	3	15 3	14	0		44	10	21 27	40	52		74	14	24 22	5	11	57 11
15	3	15 0	15	0		45	10	32 42	41	39		75	14	28 39	5	12	57 31
16	4	15 27	15	59		46	10	43 53	42	23		76	14	32 40	5	13	57 49
17	4	15 23	16	58		47	10	54 40	43	7		77	14	36 25	5	14	58 5
18	4	15 14	17	55		48	11	5 21	43	51		78	14	39 53	5	15	58 21
19	4	14 42	18	54		49	11	15 50	44	35		79	14	43 5	5	16	58 46
20	5	14 36	19	51		50	11	26 8	45	16		80	14	46 1	5	17	58 50
21	5	14 31	20	49		51	11	36 9	45	56		81	14	48 22	5	18	59 1
22	5	14 25	21	46		52	11	46 5	46	37		82	14	51 2	5	19	59 12
23	5	14 19	22	43		53	11	55 9	47	15		83	14	53 1	5	20	59 23
24	6	14 13	23	40		54	12	5 12	47	54		84	14	54 32	5	21	59 31
25	6	14 6	24	35		55	12	14 9	48	34		85	14	56 1	5	22	59 38
26	6	13 59	25	31		56	12	23 8	49	11		86	14	57 0	5	23	59 45
27	6	13 52	26	27		57	12	32 8	49	46		87	14	58 0	5	24	59 50
28	6	13 45	27	22		58	12	40 8	50	21		88	14	59 0	5	25	59 55
29	7	13 38	28	16		59	12	49 8	50	56		89	14	59 0	5	26	59 58
30	7	13 29	29	10		60	12	57 7	51	29		90	15	0 0	5	27	60 0

ARCUS				Diff ferē tia	ARCUS				Diff ferē tia	ARCUS				Diff ferē tia
Defcēdētēs.				Late ralis	Defcēdētēs				Late ralis.	Defcēdētēs				Late ralis.
g	g	m	fa		g	g	m	fa		g	g	m	fa	
1	0	16	32	1 1	31	8	9	41	29 57	61	13	57	8	51 56
2	0	16	32	2 1	32	8	23	56	30 50	62	14	5	9	52 28
3	0	49	36	3 0	33	8	38	3	31 42	63	14	13	1	52 59
4	1	6	6	4 1	34	8	51	56	32 35	64	14	20	38	53 29
5	1	22	36	5 1	35	9	5	48	33 27	65	14	27	59	53 57
6	1	39	4	6 1	36	9	19	26	34 17	66	14	38	4	54 25
7	1	55	30	7 1	37	9	32	54	35 9	67	14	41	53	54 52
8	2	11	55	8 0	38	9	46	13	35 58	68	14	48	26	55 17
9	2	28	17	9 0	39	9	59	21	36 48	69	14	54	42	55 42
10	2	44	36	10 1	40	10	12	19	37 36	70	15	0	42	56 5
11	3	0	53	11 0	41	10	25	6	38 25	71	15	5	25	56 28
12	3	17	7	11 59	42	10	37	41	39 13	72	15	11	51	56 49
13	3	33	18	12 58	43	10	50	5	40 1	73	15	17	0	57 10
14	3	49	24	13 57	44	11	2	19	40 46	74	15	21	53	57 28
15	4	5	27	14 56	45	11	14	21	41 32	75	15	26	28	57 47
16	4	21	26	15 55	46	11	26	10	42 17	76	15	30	45	58 4
17	4	37	21	16 52	47	11	37	47	43 2	77	15	34	46	58 20
18	4	53	10	17 51	48	11	49	12	43 45	78	15	38	29	58 34
19	5	8	55	18 48	49	12	0	25	44 27	79	15	41	55	58 47
20	5	24	34	19 46	50	12	11	24	45 9	80	15	45	2	59 1
21	5	40	8	20 43	51	12	22	9	45 51	81	15	47	52	59 12
22	5	55	36	21 40	52	12	32	42	46 31	82	15	50	25	59 21
23	6	10	58	22 37	53	12	43	1	47 10	83	15	52	39	59 31
24	6	26	14	23 33	54	12	53	6	47 50	84	15	54	36	59 39
25	6	41	22	24 29	55	13	2	58	48 28	85	15	56	15	59 45
26	6	56	24	25 25	56	13	12	36	49 4	86	15	57	36	59 50
27	7	11	19	26 20	57	13	21	58	49 40	87	15	58	39	59 54
28	7	26	7	27 14	58	13	31	6	50 16	88	15	59	24	59 57
29	7	40	46	28 9	59	13	40	8	50 50	89	15	59	51	59 59
30	7	55	19	29 3	60	13	48	38	51 23	90	16	0	0	60 0

ARCALES		Dif ferē tia		ARCALES		Dif ferē tia		ARCALES		Dif ferē tia				
Defecēdētes		Late ralis		Defecēdētes		Late ralis		Defecēdētes		Late ralis				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	0	17 33	1	0	31	8 39 38	29 50	61	14 48 57	51 53				
2	0	35 5	2	0	32	8 54 46	30 43	62	14 57 37	52 24				
3	0	52 36	3	0	33	9 9 45	31 36	63	15 6 0	52 55				
4	1	10 7	4	0	34	9 24 34	32 28	64	15 14 7	53 25				
5	1	27 37	4	59	35	9 39 14	33 19	65	15 21 56	53 54				
6	1	45 5	5	59	36	9 53 43	34 10	66	15 29 29	54 22				
7	2	2 31	6	59	37	10 8 3	35 1	67	15 36 45	54 49				
8	2	19 55	7	59	38	10 22 11	35 51	68	15 43 41	55 15				
9	2	37 17	8	58	39	10 36 9	36 40	69	15 50 24	55 40				
10	2	54 37	9	57	40	10 49 55	37 30	70	15 56 47	56 4				
11	3	11 53	10	56	41	11 3 31	38 17	71	16 2 53	56 26				
12	3	29 6	11	55	42	11 16 54	37 6	72	16 8 40	56 48				
13	3	46 16	12	54	43	11 30 6	37 53	73	16 14 10	57 8				
14	4	3 21	13	53	44	11 43 5	40 40	74	16 19 21	57 28				
15	4	20 23	14	52	45	11 55 51	41 24	75	16 24 15	57 45				
16	4	37 21	15	49	46	12 8 27	42 10	76	16 28 49	58 3				
17	4	54 13	16	48	47	12 20 49	42 54	77	16 33 6	58 18				
18	5	11 1	17	46	48	12 32 57	43 37	78	16 37 3	58 34				
19	5	27 43	18	44	49	12 44 52	44 20	79	16 40 42	58 48				
20	5	44 20	19	41	50	12 56 33	45 2	80	16 44 3	59 0				
21	6	0 51	20	38	51	13 8 0	45 44	81	16 47 4	59 11				
22	6	17 16	21	35	52	13 19 13	46 25	82	16 49 46	59 22				
23	6	33 35	22	31	53	13 30 11	47 5	83	16 52 10	59 30				
24	6	49 47	23	27	54	13 40 56	47 43	84	16 54 15	59 37				
25	7	5 51	24	23	55	13 51 25	48 21	85	16 56 0	59 45				
26	7	21 49	25	19	56	14 1 39	48 59	86	16 57 26	59 51				
27	7	37 39	26	13	57	14 11 38	49 36	87	16 58 0	59 55				
28	7	53 21	27	8	58	14 21 22	50 11	88	16 59 0	59 58				
29	8	8 55	28	3	59	14 30 9	50 45	89	16 59 0	59 59				
30	8	24 21	28	57	60	14 40 8	51 20	90	17 0 0	60 0				

ERREURS	ARCUS					Diff fere tia	ARCUS					Diff fere tia	ARCUS					Diff fere tia
	Areales						Areales						Areales					
Defectetes.						Defectetes						Defectetes						
g	g	m	fa	m	fa	g	g	m	fa	m	fa	g	g	m	fa	m	fa	
1	0	18	33	0	59	31	9	28	1	29	43	61	15	40	50	11	51	48
2	0	37	5	1	59	32	9	25	29	30	36	62	15	50	8	54	52	20
3	0	55	36	2	59	33	9	41	21	31	27	63	15	58	55	37	52	51
4	1	14	7	3	58	34	9	57	2	32	20	64	16	7	32	18	51	21
5	1	32	36	4	58	35	10	12	33	33	11	65	16	15	50	1	53	51
6	1	51	4	5	57	36	10	27	53	34	3	66	16	23	51	43	54	19
7	2	9	30	6	56	37	10	43	4	34	52	67	16	31	34	24	54	46
8	2	27	54	7	55	38	10	58	2	35	43	68	16	38	58	6	55	12
9	2	45	15	8	55	39	11	12	49	36	33	69	16	46	4	47	55	36
10	3	4	34	9	53	40	11	27	25	37	22	70	16	52	51	28	56	0
11	3	22	49	10	53	41	11	41	48	38	11	71	16	59	19	9	56	23
12	3	41	1	11	52	42	11	56	0	38	58	72	17	5	28	5	56	45
13	3	59	10	12	50	43	12	9	59	39	45	73	17	11	18	5	57	6
14	4	17	14	13	49	44	12	23	45	40	31	74	17	16	49	11	57	26
15	4	35	15	14	46	45	12	37	17	41	18	75	17	22	0	4	57	44
16	4	53	10	15	45	46	12	50	37	42	2	76	17	26	52	32	58	1
17	5	11	1	16	42	47	13	3	43	42	46	77	17	31	24	13	58	18
18	5	28	47	17	40	48	13	16	34	43	31	78	17	35	37	3	58	33
19	5	46	27	18	37	49	13	29	12	44	14	79	17	39	30	3	58	46
20	6	4	1	19	35	50	13	41	35	44	56	80	17	43	3	12	58	59
21	6	21	29	20	32	51	13	53	44	45	37	81	17	46	15	2	59	11
22	6	38	51	21	28	52	14	5	38	46	18	82	17	49	8	2	59	21
23	6	56	6	22	24	53	14	17	16	46	58	83	17	51	40	2	59	31
24	7	13	14	23	20	54	14	28	39	47	38	84	17	53	52	1	59	39
25	7	30	14	24	16	55	14	39	47	48	16	85	17	55	45	1	59	44
26	7	47	8	25	11	56	14	50	38	48	54	86	17	57	17	1	59	50
27	8	3	52	26	7	57	15	1	14	49	30	87	17	58	28	0	59	54
28	8	20	29	27	1	58	15	11	33	50	6	88	17	59	19	30	59	47
29	8	36	58	27	55	59	15	21	35	50	41	89	17	59	49	0	59	59
30	8	53	18	28	49	60	15	31	21	51	15	90	18	0	0	0	60	0

ARITHMETIC					ARITHMETIC					ARITHMETIC				
Defécédétes					Defécédétes					Defécédétes				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	19	32	0 59	31	9	39	11	29 33	61	16	32	38	51 43
2	0	39	4	1 58	32	9	56	5	30 26	62	16	42	21	52 16
3	0	58	35	2 57	33	10	12	48	31 20	63	16	51	46	52 47
4	1	18	5	3 57	34	10	29	22	32 11	64	17	0	53	53 17
5	1	37	34	4 56	35	10	45	44	33 3	65	17	9	41	53 47
6	1	57	1	5 55	36	11	1	56	33 54	66	17	18	10	54 15
7	2	16	26	6 54	37	11	17	56	34 45	67	17	26	20	54 42
8	2	35	49	7 53	38	11	33	45	35 36	68	17	34	10	55 9
9	2	55	10	8 51	39	11	49	22	36 25	69	17	41	40	55 35
10	3	14	27	9 51	40	12	4	47	37 13	70	17	48	51	55 58
11	3	33	42	10 49	41	12	19	59	38 1	71	17	55	42	56 22
12	3	52	53	11 47	42	12	34	58	38 49	72	18	2	13	56 43
13	4	12	0	12 45	43	12	49	44	39 36	73	18	8	24	57 5
14	4	31	3	13 43	44	13	4	16	40 23	74	18	14	15	57 25
15	4	50	1	14 42	45	13	18	35	41 9	75	18	19	44	57 44
16	5	8	55	15 39	46	13	32	39	41 55	76	18	24	53	58 2
17	5	27	43	16 37	47	13	46	29	42 39	77	18	29	42	58 18
18	5	46	27	17 34	48	14	0	5	43 23	78	18	34	10	58 32
19	6	5	4	18 32	49	14	13	26	44 6	79	18	38	16	58 46
20	6	23	36	19 28	50	14	26	31	44 49	80	18	42	2	58 59
21	6	42	1	20 24	51	14	39	21	45 31	81	18	45	26	59 11
22	7	0	19	21 21	52	14	51	56	46 12	82	18	48	29	59 22
23	7	18	30	22 17	53	15	4	14	46 52	83	18	51	11	59 30
24	7	36	34	23 13	54	15	16	17	47 31	84	18	53	31	59 38
25	7	54	30	24 9	55	15	28	3	48 9	85	18	55	29	59 46
26	8	12	19	25 3	56	15	39	32	48 47	86	18	57	7	59 51
27	8	29	59	25 58	57	15	50	44	49 24	87	18	58	22	59 55
28	8	47	30	26 53	58	16	1	39	50 0	88	18	59	16	59 58
29	9	4	53	27 47	59	16	12	16	50 36	89	18	59	48	60 0
30	9	22	7	28 40	60	16	22	36	51 9	90	19	0	0	60 0

FRANÇOIS					FRANÇOIS					FRANÇOIS				
Arcades					Arcades					Arcades				
Défécettes					Défécettes					Défécettes				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
1	0	21	30	0 59	31	10	38	10	29 17	61	18	15	58	51 34
2	0	43	0	1 57	32	10	56	50	30 9	62	18	26	48	52 6
3	1	4	29	2 55	33	11	15	19	31 1	63	18	37	16	52 38
4	1	25	57	3 54	34	11	33	36	31 55	64	18	47	23	53 10
5	1	47	24	4 52	35	11	51	42	32 46	65	18	57	10	53 39
6	2	8	49	5 50	36	12	9	37	33 35	66	19	6	37	54 8
7	2	30	11	6 45	37	12	27	18	34 27	67	19	15	42	54 35
8	2	51	32	7 47	38	12	44	47	35 16	68	19	24	25	55 2
9	3	12	50	8 44	39	13	2	2	36 7	69	19	32	47	55 27
10	3	34	4	9 43	40	13	19	5	36 55	70	19	40	7	55 52
11	3	55	15	10 41	41	13	35	54	37 43	71	19	48	7	56 16
12	4	16	23	11 38	42	13	52	29	38 31	72	19	55	39	56 38
13	4	37	26	12 36	43	14	8	49	39 19	73	20	2	32	56 59
14	4	58	25	13 33	44	14	24	54	40 6	74	20	9	1	57 21
15	5	19	19	14 31	45	14	40	45	40 52	75	20	15	9	57 39
16	5	40	8	15 28	46	14	56	20	41 38	76	20	20	54	57 57
17	6	0	31	16 25	47	14	11	40	42 22	77	20	26	15	58 14
18	6	21	29	17 22	48	15	26	43	43 7	78	20	31	13	58 29
19	6	42	1	18 18	49	15	41	31	43 50	79	20	35	48	58 43
20	7	2	25	19 15	50	15	56	2	44 33	80	20	39	59	58 57
21	7	22	43	20 11	51	16	10	15	45 16	81	20	43	46	59 9
22	7	42	54	21 7	52	16	24	12	45 57	82	20	47	10	59 20
23	8	2	57	22 3	53	16	37	51	46 38	83	20	50	10	59 29
24	8	22	51	22 57	54	16	51	13	47 17	84	20	52	47	59 37
25	8	42	40	23 53	55	17	4	16	47 56	85	20	54	59	59 44
26	9	2	18	24 48	56	17	17	1	48 34	86	20	56	48	59 49
27	9	21	48	25 42	57	17	29	27	49 13	87	20	58	12	59 54
28	9	41	9	26 35	58	17	41	34	49 48	88	20	59	12	59 57
29	10	0	19	27 30	59	17	53	22	50 23	89	20	59	49	60 0
30	10	19	20	28 23	60	18	4	29	50 59	90	21	0	0	60 0

L'Arcus	Arcus				Dif fere tia Late ralis	L'Arcus	Arcus				Dif fere tia Late ralis	L'Arcus	Arcus				Dif fere tia Late ralis
	Defecdetes.	g	m	fa			Defecdetes	g	m	fa			Defecdetes	g	m	fa	
1	0	22	29	0 58		31	11	7	27		61	19	7	32	51 28		
2	0	44	57	1 56		32	11	26	59	29 7	62	19	18	54	52 0		
3	1	7	24	2 54		33	11	46	20	30 0	63	19	29	54	52 32		
4	1	29	51	3 52		34	12	5	31	30 51	64	19	40	33	53 4		
5	1	52	16	4 50		35	12	24	28	31 43	65	19	50	49	53 34		
6	2	14	39	5 48		36	12	43	12	32 35	66	20	0	45	54 2		
7	2	37	2	6 46		37	13	1	45	33 27	67	20	10	17	54 31		
8	2	59	19	7 43		38	13	20	3	34 16	68	20	19	27	54 58		
9	3	21	34	8 42		39	13	33	9	35 7	69	20	28	14	55 24		
10	3	43	47	9 39		40	13	56	0	36 46	70	20	36	38	55 50		
11	4	5	56	10 36		41	14	13	37	37 34	71	20	44	40	56 13		
12	4	28	1	11 34		42	14	31	0	38 22	72	20	52	17	56 36		
13	4	50	2	12 31		43	14	48	8	39 9	73	20	59	31	56 57		
14	5	11	58	13 29		44	15	5	0	39 57	74	21	6	22	57 18		
15	5	33	50	14 25		45	15	21	37	40 43	75	21	12	48	57 38		
16	5	55	36	15 22		46	15	37	58	41 28	76	21	18	51	57 55		
17	6	17	16	16 19		47	15	54	2	42 14	77	21	24	29	58 12		
18	6	38	51	17 15		48	16	9	50	42 58	78	21	29	42	58 28		
19	7	0	19	18 11		49	16	25	21	43 42	79	21	34	31	58 43		
20	7	21	40	19 7		50	16	40	35	44 24	80	21	38	56	58 55		
21	7	42	54	20 3		51	16	55	31	45 6	81	21	42	55	59 8		
22	8	4	1	20 59		52	17	10	9	45 49	82	21	46	30	59 18		
23	8	25	0	21 54		53	17	24	29	46 31	83	21	49	39	59 29		
24	8	45	50	22 50		54	17	38	30	47 10	84	21	52	24	59 37		
25	9	6	33	23 44		55	17	52	12	47 49	85	21	54	43	59 44		
26	9	27	6	24 39		56	18	5	35	48 28	86	21	56	37	59 50		
27	9	47	30	25 34		57	18	18	40	49 5	87	21	58	6	59 54		
28	10	7	44	26 28		58	18	31	22	49 43	88	21	59	9	59 58		
29	10	27	49	27 21		59	18	43	45	50 19	89	21	59	49	59 57		
30	10	47	43	28 14		60	18	55	48	50 54	90	22	0	0	60 0		

ALFABETICO					ALFABETICO					ALFABETICO				
Defectives					Defectives					Defectives				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	23	27	0 57	31	11	36	34	28 58	61	19	59	0	51 20
2	0	46	53	1 55	32	11	56	59	29 51	62	20	10	54	51 54
3	1	10	18	2 51	33	12	17	13	30 43	63	20	22	26	52 27
4	1	33	43	3 50	34	12	37	14	31 34	64	20	33	37	52 57
5	1	57	6	4 48	35	12	57	3	32 25	65	20	44	23	53 29
6	2	20	27	5 45	36	13	16	39	33 16	66	20	54	47	53 58
7	2	43	46	6 43	37	13	36	1	34 7	67	21	4	48	54 27
8	3	7	2	7 40	38	13	55	10	34 57	68	21	14	25	54 54
9	3	30	16	8 37	39	14	14	5	35 47	69	21	23	38	55 21
10	3	53	26	9 34	40	14	32	46	36 35	70	21	42	28	55 46
11	4	16	32	10 32	41	14	51	11	37 25	71	21	40	8	56 10
12	4	39	35	11 29	42	15	9	22	38 12	72	21	48	7	56 33
13	5	2	33	12 26	43	15	27	17	39 0	73	21	56	28	56 55
14	5	25	27	13 22	44	15	44	57	40 33	74	22	3	40	57 15
15	5	43	15	14 19	45	16	2	20	41 19	75	22	10	26	57 35
16	6	10	58	15 16	46	16	19	26	42 4	76	22	16	46	57 54
17	6	31	31	16 12	47	16	36	16	43 32	77	22	22	41	58 11
18	6	56	6	17 8	48	16	52	48	44 17	78	22	28	10	58 27
19	7	18	30	18 4	49	17	9	3	45 20	79	22	33	14	58 41
20	7	40	47	19 0	50	17	24	59	46 2	80	22	37	51	58 55
21	8	2	57	19 56	51	17	40	37	47 42	81	22	42	3	59 8
22	8	25	0	20 50	52	17	55	58	48 20	82	22	45	48	59 19
23	8	46	54	21 46	53	18	11	0	49 35	83	22	49	8	59 28
24	9	8	40	22 41	54	18	25	40	50 12	84	22	52	1	59 36
25	9	30	17	23 35	55	18	40	1	51 47	85	22	54	27	59 44
26	9	51	45	24 30	56	18	54	3	52 2	86	22	56	2	59 49
27	10	13	4	25 23	57	19	7	45	53 58	87	22	58	0	59 54
28	10	34	12	26 18	58	19	21	5	54 35	88	22	59	7	59 57
29	10	55	10	27 13	59	19	34	4	55 12	89	22	59	46	59 59
30	11	15	57	28 5	60	19	46	42	56 47	90	23	0	0	60 0

ERREUR Défectées.	ARCUS				Diffé- ren- ce lati- tudi- nale	Défectées	ARCUS				Diffé- ren- ce lati- tudi- nale	Défectées	ARCUS				Diffé- ren- ce lati- tudi- nale		
	Arcuales						Arcuales						Arcuales						
	g	m	fa	m fa		g	m	fa	m fa		g	m	fa	m fa		g	m	fa	m fa
1	0	24	24	0 57		31	12	5 32	28 47		61	20	50	20 28		51	14		
2	0	48	48	1 54		32	12	26 50	29 39		62	21	2 48	5 51 48					
3	1	13	11	2 52		33	12	47 56	30 31		63	21	14 51	11 41		52	21		
4	1	37	33	4 49		34	13	8 48	31 23		64	21	26 34	18 52 53					
5	2	1	54	4 45		35	13	29 28	32 15		65	21	37 52	53 24					
6	2	26	12	5 43		36	13	49 55	33 5		66	21	48 45	53 54					
7	2	50	28	6 40		37	14	10 8	33 56		67	21	59 15	54 22					
8	3	14	42	7 37		38	14	30 7	34 46		68	22	9 19	54 51					
9	3	38	53	8 34		39	14	49 52	35 35		69	22	18 9	55 17					
10	4	3	0	9 31		40	15	9 21	36 25		70	22	28 14	55 42					
11	4	27	4	10 27		41	15	28 18	37 13		71	22	37 3	56 7					
12	4	51	4	11 23		42	15	47 34	38 2		72	22	45 26	56 30					
13	5	14	50	12 20		43	16	6 17	38 49		73	22	53 23	56 54					
14	5	38	49	13 17		44	16	24 43	39 37		74	23	0 55	57 14					
15	6	2	34	14 13		45	16	42 53	40 23		75	23	8 6	57 33					
16	6	26	14	15 8		46	17	0 45	41 9		76	23	14 6	57 51					
17	6	49	47	16 4		47	17	18 20	41 54		77	23	20 5	58 10					
18	7	13	14	17 0		48	17	35 37	42 39		78	23	26 37	58 26					
19	7	36	34	17 56		49	17	52 35	43 24		79	23	31 51	58 41					
20	7	59	47	18 52		50	18	9 16	44 6		80	23	36 4	58 56					
21	8	22	53	19 47		51	18	25 36	44 50		81	23	41 11	59 7					
22	8	45	50	20 43		52	18	41 38	45 32		82	23	45 7	59 18					
23	9	8	40	21 37		53	18	57 20	46 13		83	23	48 3	59 28					
24	9	31	21	22 31		54	19	12 42	46 53		84	23	51 37	59 37					
25	9	53	52	23 27		55	19	27 43	47 33		85	23	54 11	59 44					
26	10	16	15	24 20		56	19	42 23	48 12		86	23	56 16	59 50					
27	10	38	27	25 14		57	19	56 43	48 50		87	23	57 34	59 55					
28	11	0	30	26 7		58	20	10 40	49 27		88	23	59 4	59 57					
29	11	22	23	27 1		59	20	24 16	50 3		89	23	59 45	60 1					
30	11	44	2	27 56		60	20	37 29	50 39		90	24	0 0	60 0					

ARCAUS					Dif ferētia		ARCAUS					Dif ferētia		ARCAUS					Dif ferētia	
Arcales					Late ralis		Arcales					Late ralis		Arcales					Late ralis	
Defecēdētes					Late ralis		Defecēdētes					Late ralis		Defecēdētes					Late ralis	
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa	
1	0	25	21	0 57	31	12	34	19	28 37	61	21	41	13	2	51	8				
2	0	50	42	1 54	32	12	56	29	29 29	62	21	54	36							
3	1	16	3	2 50	33	13	18	27		63	22	7	14							
4	1	41	22	3 46	34	13	40	11	31 12	64	22	19	27							
5	2	6	39	4 44	35	14	1	43		65	22	31	16							
6	2	31	55	5 40	36	14	23	0	32 3	66	22	42	39							
7	2	57	8	6 37	37	14	44	4	32 54	67	22	53	37							
8	3	22	19	7 33	38	15	4	53	33 44	68	23	4	10							
9	3	47	28	8 29	39	15	25	27	34 33	69	23	14	16							
10	4	12	31	9 26	40	15	45	46	35 24	70	23	23	56							
11	4	37	31	10 22	41	16	5	49	36 13	71	23	33	10							
12	5	2	27	11 19	42	16	25	36	37 2	72	23	41	56							
13	5	27	19	12 14	43	16	45	6	37 50	73	23	50	17							
14	5	52	6	13 10	44	17	4	20	38 38	74	23	58	7							
15	6	16	47	14 6	45	17	23	16	39 26	75	24	5	34							
16	6	41	22	15 2	46	17	41	54	40 12	76	24	12	31							
17	7	5	51	15 58	47	18	0	14	40 58	77	24	19	2							
18	7	30	14	16 54	48	18	18	16	41 43	78	24	25	3							
19	7	54	30		49	18	35	59	42 29	79	24	30	36							
20	8	18	39	18 43	50	18	53	22	43 13	80	24	35	42							
21	8	42	40	19 38	51	19	10	26	43 58	81	24	40	18							
22	9	6	33	20 33	52	19	27	10	44 40	82	24	44	25							
23	9	30	17	21 28	53	19	43	33	45 22	83	24	48	4							
24	9	53	52	22 23	54	19	59	35	46 3	84	24	51	14							
25	10	17	19		55	20	15	16	46 44	85	24	53	55							
26	10	40	35	23 16	56	20	30	35	47 24	86	24	56	6							
27	11	3	41	25 6	57	20	45	33	48 4	87	24	57	49							
28	11	26	37	25 59	58	21	0	7	48 42	88	24	59	1							
29	11	49	24	26 50	59	21	14	19	49 57	89	24	59	46							
30	12	11	58	27 43	60	21	28	8	50 33	90	25	0	0							

DESCEDENTES.	ARCUS				Dif feren tia Late ralis.	ARCUS				Dif feren tia Late ralis.	ARCUS				Dif feren tia Late ralis.
	Arcuales					Arcuales					Arcuales				
	g	m	fa	m fa		g	m	fa	m fa		g	m	fa	m fa	
1	0	26	18		31	13	2	56		61	22	32	42	51 0	
2	0	52	36		32	13	25	58		62	22	46	18	51 34	
3	1	18	53		33	13	48	47	29 17	63	22	59	29	52 8	
4	1	26	15	2 48			22	36	30 9			12	45		
5	1	45	8		34	14	11	23		64	23	12	14	52 40	
6	2	26	15	3 45			22	23	31 1			12	20		
7	2	11	23		35	14	33	46		65	23	24	34	53 12	
8	2	26	12	4 41			22	8	31 51			11	53		
9	2	37	35		36	14	55	54		66	23	36	27	53 44	
10	3	26	10	5 37			21	54	32 43			11	27		
11	3	3	45		37	15	17	48		67	23	47	54	54 14	
12	3	26	7	6 33			21	38	33 33			11	1		
13	3	29	52		38	15	39	26		68	23	58	55	54 42	
14	3	26	4	7 29			21	25	34 24			10	33		
15	3	55	56		39	16	0	51		69	24	9	28	55 10	
16	3	26	1	8 25			21	8	35 13			10	6		
17	4	21	57		40	16	21	59		70	24	19	34	55 36	
18	4	25	56	9 21			20	52	36 2			9	40		
19	4	47	53		41	16	42	51		71	24	29	14	56 0	
20	4	53	10	17			20	35	36 50			9	10		
21	5	13	46		42	17	3	26		72	24	38	24	56 24	
22	5	25	47	11 12			20	18	37 39			4	43		
23	5	39	33		43	17	23	44		73	24	47	7	56 47	
24	5	25	43	12 9			20	2	38 27			8	14		
25	6	5	16		44	17	43	46		74	24	55	21	57 8	
26	6	25	37	13 4			19	42	39 14			7	45		
27	6	30	53		45	18	3	28		75	25	3	6	57 29	
28	6	25	31	13 59			19	24	40 0			7	16		
29	6	56	24		46	18	22	52		76	25	10	22	57 48	
30	6	25	25	14 55			19	5	40 48			6	47		
31	7	21	49		47	18	41	57		77	25	17	9	57 48	
32	7	25	19	15 50			18	48	41 34			6	19		
33	7	47	8		48	19	0	45		78	25	23	28	58 6	
34	7	25	11	16 44			18	27	42 17			5	48	58 22	
35	8	12	19		49	19	19	12		79	25	29	16		
36	8	25	3	17 40			18	8	43 2			5	19	58 38	
37	8	37	22		50	19	37	20		80	25	34	35		
38	8	24	56	18 35			17	46	43 45			4	48	58 51	
39	9	2	18		51	19	55	6		81	25	39	23		
40	9	24	48	19 30			17	26	44 29			4	19	59 5	
41	9	27	6		52	20	12	32		82	25	43	42		
42	9	24	39	20 24			17	4	45 12			3	49	59 16	
43	9	51	45		53	20	29	36		83	25	47	31		
44	10	24	30	21 19			16	43	45 54			3	19	59 26	
45	10	16	15		54	20	46	19		84	25	50	50		
46	10	24	20	22 12			16	21	46 35			2	48	59 35	
47	10	40	35		55	21	2	40		85	25	53	38		
48	11	24	12	23 6			15	59	47 15			2	17	59 42	
49	11	4	47		56	21	18	39		86	25	55	55		
50	11	24	0	24 0			15	36	47 55			1	47	59 49	
51	11	28	47		57	21	34	15		87	25	57	42		
52	11	23	49	24 53			15	12	48 33			1	17	59 54	
53	11	52	36		58	21	49	27		88	25	58	59		
54	11	23	38	25 47			14	49	49 12			0	46	59 57	
55	12	16	14		59	22	4	16		89	25	59	45		
56	12	23	27	26 40			14	25	49 49			0	15	59 59	
57	12	39	41		60	22	18	41		90	26	0	0		
58	12	23	15	27 32			14	1	50 25			0	0	60 0	

ARCUS					ARCUS					ARCUS				
Defécètes					Defécètes					Defécètes				
Arcuales					Arcuales					Arcuales				
g	s	m	fa	mi fa	g	s	m	fa	mi fa	g	s	m	fa	mi fa
1	0	27	14	0 56	31	13	31	20	28 14	61	23	23	42	50 53
2	0	54	28	1 52	32	13	55	15	29 5	62	23	37	52	51 28
3	1	21	41	2 48	33	14	18	56	29 57	63	23	51	37	52 2
4	1	48	53	3 43	34	14	42	24	30 48	64	24	4	54	52 36
5	2	16	4	4 38	35	15	5	37	31 40	65	24	17	46	53 7
6	2	43	12	5 34	36	15	28	37	32 30	66	24	30	11	53 38
7	3	10	18	6 30	37	15	51	21	33 21	67	24	42	8	54 7
8	3	37	21	7 26	38	16	13	50	34 11	68	24	53	37	54 36
9	4	4	21	8 21	39	16	36	4	35 0	69	25	4	38	55 4
10	4	31	18	9 16	40	16	58	1	35 49	70	25	15	10	55 30
11	4	58	10	10 12	41	17	19	41	36 39	71	25	25	14	55 55
12	5	24	58	11 7	42	17	41	5	37 26	72	25	34	48	56 20
13	5	51	42	12 2	43	18	2	11	38 14	73	25	43	54	56 43
14	6	18	39	12 57	44	18	23	0	39 1	74	25	52	29	57 5
15	6	44	52	13 53	45	18	43	28	39 50	75	26	0	35	57 26
16	7	11	19	14 48	46	19	3	40	40 35	76	26	8	10	57 46
17	7	37	32	15 42	47	19	23	31	41 22	77	26	15	15	58 4
18	8	3	52	16 37	48	19	43	2	42 7	78	26	21	50	58 21
19	8	29	59	17 31	49	20	2	14	42 51	79	26	27	54	58 36
20	8	55	57	18 26	50	20	21	5	43 35	80	26	33	32	58 51
21	9	21	43	19 21	51	20	39	35	44 19	81	26	38	28	59 4
22	9	47	30	20 14	52	20	57	44	45 1	82	26	42	58	59 16
23	10	13	4	21 8	53	21	15	30	45 43	83	26	46	57	59 26
24	10	38	27	22 3	54	21	32	54	46 25	84	26	50	25	59 34
25	11	3	41	22 56	55	21	49	55	47 6	85	26	53	20	59 43
26	11	28	47	23 49	56	22	6	34	47 45	86	26	55	44	59 49
27	11	53	40	24 43	57	22	22	48	48 25	87	26	57	36	59 51
28	12	18	23	25 36	58	22	38	39	49 2	88	26	58	56	59 57
29	12	42	54	26 28	59	22	54	5	49 40	89	26	59	44	59 59
30	13	7	13	27 21	60	23	9	6	50 17	90	27	0	0	60 0

ARABES					ARABES					ARABES				
Defécédées					Defécédées					Defécédées				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	0	28	10	0 55	31	13	59	34	28 0	61	24	14	35	50 45
2	0	56	20	1 50	32	14	24	20	28 53	62	24	29	20	51 21
3	1	24	29	2 45	33	14	48	53	29 44	63	24	43	39	51 55
4	1	52	36	3 41	34	15	13	12	30 36	64	24	57	30	52 28
5	2	20	42	4 36	35	15	37	17	31 26	65	25	10	53	53 0
6	2	48	46	5 31	36	16	1	7	32 17	66	25	23	49	53 31
7	3	16	48	6 26	37	16	24	42	33 7	67	25	36	15	54 2
8	3	44	47	7 21	38	16	48	1	33 57	68	25	48	13	54 31
9	4	12	42	8 16	39	17	11	4	34 47	69	25	59	42	54 58
10	4	40	34	9 11	40	17	33	50	35 37	70	26	10	40	55 26
11	5	8	22	10 6	41	17	56	20	36 24	71	26	21	9	55 52
12	5	36	5	11 1	42	18	18	31	37 14	72	26	31	8	56 17
13	6	3	44	11 56	43	18	40	25	38 3	73	26	40	37	56 40
14	6	31	17	12 51	44	19	2	1	38 50	74	26	49	34	57 2
15	6	58	45	13 45	45	19	23	18	39 37	75	26	58	1	57 23
16	7	26	7	14 39	46	19	44	15	40 23	76	27	5	56	57 42
17	7	53	21	15 34	47	20	4	53	41 8	77	27	13	19	58 2
18	8	20	29	16 29	48	20	25	9	41 54	78	27	20	11	58 19
19	8	47	30	17 23	49	20	45	5	42 40	79	27	26	30	58 35
20	9	14	23	18 17	50	21	4	40	43 24	80	27	32	17	58 50
21	9	41	9	19 10	51	21	23	54	44 7	81	27	37	32	59 2
22	10	7	44	20 5	52	21	42	45	44 50	82	27	42	14	59 14
23	10	34	12	20 58	53	22	1	13	45 33	83	27	46	23	59 25
24	11	0	30	21 53	54	22	19	19	46 14	84	27	49	59	59 35
25	11	26	37	22 47	55	22	37	1	46 55	85	27	53	3	59 41
26	11	52	36	23 38	56	22	54	19	47 36	86	27	55	33	59 48
27	12	18	23	24 31	57	23	11	14	48 15	87	27	57	29	59 54
28	12	43	39	25 23	58	23	27	41	48 54	88	27	58	53	59 56
29	13	9	22	26 17	59	23	43	45	49 32	89	27	59	43	59 59
30	13	34	34	27 9	60	23	59	23	50 10	90	28	0	0	60 0

LATERALES		TRANS				VER		29		52		228					
ARCUS		Diff ferē tia Late- ralis.		LATERALES		ARCUS		Diff ferē tia Late- ralis.		LATERALES		ARCUS		Diff ferē tia Late- ralis.			
Defēdētēs		Arcuales		LATERALES		Defēdētēs		Arcuales		LATERALES		Defēdētēs		Arcuales		LATERALES	
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	g	m	fa	m	fa
1	0	29	5	0 55	11	14	27	34	27 49	61	25	5	20	15	21	50	37
2	0	58	10	1 50	12	14	51	13	28 39	62	25	20	41	14	53	51	12
3	1	27	14	2 44	13	15	18	37	29 31	63	25	35	34	14	24	51	46
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6	2	55	17	5 28	16	16	33	24	32 4	66	26	17	20	12	57	53	24
7	3	23	14	6 23	17	16	57	49	32 54	67	26	30	17	12	27	53	55
8	3	51	8	7 17	18	17	21	58	33 44	68	26	42	44	11	56	54	25
9	4	20	58	8 12	19	17	45	51	34 34	69	26	54	40	11	26	54	54
10	4	49	55	9 6	40	18	9	27	35 24	70	27	6	6	10	55	55	21
11	5	18	28	10 1	41	18	32	44	36 14	71	27	17	1	10	24	55	47
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13	6	15	40	11 49	43	19	18	28	37 48	73	27	37	17	9	19	56	36
14	6	44	8	12 43	44	19	40	51	38 36	74	27	46	36	8	48	56	59
15	7	12	30	13 38	45	20	2	55	39 22	75	27	55	24	8	14	57	20
16	7	40	46	14 32	46	20	24	38	40 10	76	28	3	38	7	43	57	42
17	8	8	55	15 26	47	20	46	1	40 56	77	28	11	21	7	9	58	0
18	8	36	58	16 20	48	21	7	3	41 42	78	28	18	30	6	35	58	18
19	9	4	53	17 14	49	21	27	45	42 27	79	28	25	5	6	2	58	34
20	9	32	40	18 7	50	21	48	4	43 12	80	28	31	7	5	27	58	49
21	10	0	19	19 1	51	22	8	1	43 55	81	28	36	4	4	54	59	3
22	10	27	49	19 54	52	22	27	35	44 39	82	28	41	28	4	20	59	15
23	10	55	10	20 47	53	22	46	46	45 22	83	28	45	48	3	46	59	26
24	11	22	23	21 39	54	23	5	33	46 4	84	28	49	34	3	10	59	34
25	11	49	24	22 34	55	23	23	56	46 45	85	28	52	44	2	37	59	43
26	12	16	14	23 27	56	23	41	55	47 25	86	28	55	21	2	2	59	49
27	12	41	54	24 19	57	23	59	28	48 6	87	28	57	23	1	26	59	54
28	13	9	22	25 12	58	24	16	35	48 45	88	28	58	49	0	51	59	59
29	13	35	39	26 4	59	24	33	47	49 23	89	28	59	42	0	18	60	0
30	14	1	43	26 56	60	24	49	33	49 59	90	29	0	0	0	0	60	0

GERAL	ARCUS					Dif ferē tia Late ralis.	ARCUS					Dif ferē tia Late ralis.	ARCUS					Dif ferē tia Late ralis.
	Areales						Areales						Areales					
	Defectus.	g	m	fa	m fa		Defectus.	g	m	fa	m fa		Defectus.	g	m	fa	m fa	
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2	1	0	0	0		32	15	21	52	28 27	62	26	11	53	51 3			
3	1	29	58	1 48		33	15	48	8	29 18	63	26	27	20	51 38			
4	1	29	58	2 43		34	16	14	10	30 9	64	26	42	18	52 13			
5	2	59	56	3 36		35	16	39	56	31 0	65	26	56	46	52 46			
6	2	29	52	4 30		36	17	5	28	31 50	66	27	10	44	53 19			
7	2	29	52	5 25		37	17	25	15	32 41	67	27	13	28	53 53			
8	3	29	37	6 18		38	17	30	43	33 31	68	27	24	12	54 23			
9	3	59	25	7 13		39	17	55	42	34 20	69	27	37	9	54 48			
10	4	29	10	8 7		40	18	24	43	35 9	70	27	49	34	55 16			
11	4	29	41	9 1		41	18	24	7	35 58	71	28	11	21	55 44			
12	5	58	51	9 54		42	19	8	58	36 46	72	28	12	48	56 10			
13	5	28	29	10 49		43	19	23	29	37 35	73	28	10	16	56 33			
14	6	58	1	11 42		44	19	32	47	38 22	74	28	23	37	56 57			
15	6	27	29	12 36		45	20	21	29	39 10	75	28	10	16	57 18			
16	6	29	22	13 29		46	20	42	17	39 57	76	28	8	36	57 38			
17	7	56	51	14 23		47	21	22	31	40 43	77	29	1	20	57 57			
18	7	55	18	15 17		48	21	4	48	41 29	78	29	8	1	58 14			
19	8	24	21	16 10		49	21	26	57	42 14	79	29	7	27	58 31			
20	8	28	57	17 4		50	22	21	48	42 59	80	29	6	51	58 46			
21	9	50	47	17 57		51	22	4	48	43 44	81	29	23	39	59 1			
22	10	28	40	18 50		52	22	51	56	44 27	82	29	35	37	59 13			
23	10	19	20	19 44		53	23	20	18	45 10	83	29	5	6	59 23			
24	11	47	43	20 37		54	23	12	14	45 53	84	29	40	43	59 34			
25	11	28	23	21 30		55	24	4	48	46 35	85	29	4	31	59 42			
26	12	57	5	22 21		56	24	54	37	47 16	86	29	45	14	59 48			
27	12	27	43	23 15		57	24	19	4	47 55	87	29	49	8	59 53			
28	13	44	2	24 7		58	25	37	19	48 35	88	29	3	19	59 56			
29	13	27	56	25 51		59	25	51	37	49 13	89	29	44	48	60 0			
30	14	1	43	26 44		60	26	20	18	49 51	90	30	52	27	60 0			
	14	26	34	26 44				46	35				27	2	7			
								47	34				43	1	31			
								48	45				54	0	54			
								49	56				59	0	18			
								50	67				60	0	0			

ARCUS					ARCUS					ARCUS				
Defécédées					Defécédées					Defécédées				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
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4	2	3	32	3 34	34	16	44	19	29 55	64	27	34	31	51 31
5	2	34	22	4 28	35	17	10	56		65	27	49	32	52 5
6	3	5	10	5 21	36	17	37	18	30 45	66	28	4	3	52 39
7	3	35	55	6 15	37	18	3	24	31 35	67	28	14	2	53 11
8	4	6	38	7 8	38	18	29	13	32 25	68	28	18	5	53 40
9	4	37	17	8 2	39	18	54	45	33 16	69	28	31	32	54 10
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13	6	37	11	11 35	43	20	9	33	36 32	73	29	11	15	56 3
14	7	9	27	12 29	44	20	24	18	37 20	74	29	19	47	56 29
15	7	39	37	13 22	45	21	23	38	38 9	75	29	30	32	56 52
16	8	9	41	14 15	46	21	21	18	38 56	76	29	50	2	57 15
17	8	29	57	15 8	47	22	44	45	39 44	77	29	8	58	57 35
18	9	29	43	16 1	48	22	22	34	40 29	78	30	7	18	57 55
19	9	39	11	16 54	49	22	30	14	41 15	79	30	15	2	58 13
20	10	8	44	17 47	50	22	22	12	42 1	80	30	7	8	58 30
21	10	29	33	18 40	51	23	52	26	42 45	81	30	22	10	58 45
22	11	7	27	19 32	52	23	21	49	43 30	82	30	28	42	58 59
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26	13	34	19	23 55	56	25	19	20	46 22	86	30	52	9	59 40
27	13	28	37	24 46	57	25	57	16	47 3	87	30	2	49	59 48
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29	14	27	34	26 29	59	26	20	12	48 23	89	30	57	10	59 57
30	14	31	20	27 35	60	26	37	46	49 2	90	31	1	34	60 0

ARCUS					ARCUS					ARCUS					ARCUS				
Arcuales					Arcuales					Arcuales					Arcuales				
Defcédētes.					Defcédētes.					Defcédētes.					Defcédētes.				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
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2	1	3	35	1 46	32	16	18	32	27 58	62	27	53	50	50 46					
3	1	35	21	2 39	33	16	46	30	28 49	63	28	10	29	51 22					
4	2	7	6	3 32	34	17	14	14	29 39	64	28	26	36	51 57					
5	2	38	50	4 25	35	17	41	12	30 31	65	28	42	11	52 31					
6	3	10	31	5 18	36	18	8	53	31 22	66	28	57	14	53 4					
7	3	42	10	6 11	37	18	35	49	32 12	67	29	11	45	53 35					
8	4	13	46	7 4	38	19	2	29	33 2	68	29	25	42	54 6					
9	4	45	19	7 56	39	19	28	51	33 50	69	29	39	5	54 37					
10	5	16	47	8 50	40	19	54	55	34 39	70	29	51	55	55 5					
11	5	48	12	9 42	41	20	20	39	35 29	71	30	4	10	55 33					
12	6	19	32	10 35	42	20	46	5	36 17	72	30	15	50	55 59					
13	6	50	46	11 29	43	21	11	11	37 6	73	30	26	55	56 24					
14	7	21	56	12 21	44	21	35	58	37 53	74	30	37	24	56 48					
15	7	52	59	13 14	45	22	0	23	38 41	75	30	47	17	57 10					
16	8	23	56	14 7	46	22	24	29	39 26	76	30	56	33	57 32					
17	8	54	46	14 59	47	22	48	9	40 15	77	31	5	13	57 52					
18	9	25	29	15 52	48	23	11	29	41 1	78	31	13	15	58 11					
19	9	56	5	16 43	49	23	34	27	41 46	79	31	20	40	58 28					
20	10	26	31	17 37	50	23	57	0	42 33	80	31	27	27	58 44					
21	10	56	50	18 29	51	24	19	10	43 17	81	31	33	37	58 57					
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25	12	56	29	21 58	55	25	43	38	46 9	85	31	51	49	59 42					
26	13	25	58	22 49	56	26	3	39	46 51	86	31	54	46	59 48					
27	13	55	15	23 41	57	26	21	12	47 33	87	31	57	3	59 54					
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30	15	21	52	26 16	60	27	19	4	49 30	90	32	0	0	60 0					

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
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ARCUS					Dif ferē tia Late ralis	ARCUS					Dif ferē tia Late ralis	ARCUS					Dif ferē tia Late ralis
Defcēdētes.						Defcēdētes.						Defcēdētes.					
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa			
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2	1	7	6	1 43	32	17	14	54	27 27	62	29	35	12	50 25			
3	1	40	37	2 36	33	17	43	53	28 19	63	29	53	2	51 2			
4	2	14	8	3 27	34	18	13	18	29 9	64	30	10	20	51 37			
5	2	47	37	4 19	35	18	42	27	30 0	65	30	27	3	52 14			
6	3	21	3	5 11	36	19	11	21	30 49	66	30	43	13	52 47			
7	3	54	27	6 3	37	19	39	57	31 39	67	30	58	48	53 21			
8	4	27	49	6 54	38	20	8	15	32 29	68	31	13	48	53 52			
9	5	1	7	7 45	39	20	16	16	33 18	69	31	28	12	54 23			
10	5	34	20	8 38	40	21	3	58	34 7	70	31	41	59	54 54			
11	6	7	30	9 29	41	21	31	20	34 57	71	31	55	10	55 22			
12	6	40	35	10 21	42	21	58	24	35 45	72	32	7	43	55 50			
13	7	13	35	11 13	43	22	25	6	36 34	73	32	19	39	56 16			
14	7	46	29	12 5	44	22	51	28	37 23	74	32	30	56	56 41			
15	8	19	18	12 56	45	23	17	29	38 9	75	32	41	35	57 4			
16	8	51	59	13 48	46	23	43	8	38 57	76	32	51	35	57 25			
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19	10	29	22	16 22	49	24	57	46	41 16	79	33	17	35	58 23			
20	11	1	33	17 14	50	25	21	51	42 2	80	33	24	54	58 40			
21	11	33	36	18 6	51	25	45	30	42 47	81	33	31	32	58 55			
22	12	5	31	18 57	52	26	8	44	43 32	82	33	37	30	59 8			
23	12	37	14	19 49	53	26	31	31	44 16	83	33	42	45	59 20			
24	13	8	48	20 40	54	26	53	51	45 0	84	33	47	19	59 31			
25	13	40	11	21 32	55	27	15	44	45 43	85	33	51	11	59 40			
26	14	11	23	22 23	56	27	37	9	46 25	86	33	54	21	59 47			
27	14	42	24	23 19	57	27	58	5	47 7	87	33	56	50	59 52			
28	15	13	12	24 5	58	28	18	31	47 49	88	33	58	35	59 57			
29	15	43	48	24 55	59	28	38	28	48 30	89	33	59	9	59 59			
30	16	14	10	25 46	60	28	57	53	49 9	90	34	0	0	60 0			

ARCUS					ARCUS					ARCUS				
Descendentes					Descendentes					Descendentes				
Arcuales					Arcuales					Arcuales				
g	g	m	fa	Diff ferè tia Late ralis	g	g	m	fa	Diff ferè tia Late ralis	g	g	m	fa	Diff ferè tia Late ralis
1	0	34	25		17	10	56			61	30	6	36	
		34	24	0 51		30	45		26 22		30	19	1	49 36
2	1	49			32	17	41			62	30	25	37	
		34	24	1 43		30	31		27 12		18	27		50 14
3	1	43	13		33	18	12			63	30	44	4	
		34	22	2 33		30	15		28 3		17	51		50 51
4	2	17	35		34	18	42			64	31	1	57	
		34	21	3 25		30	0		28 54		17	20		51 29
5	2	51	56		35	19	12			65	31	19	17	
		34	18	4 15		29	43		29 43		16	43		52 3
6	3	26	14		36	19	42			66	31	36	0	
		34	16	5 7		29	26		30 33		16	9		52 38
7	4	0	30		37	20	11			67	31	52	9	
		34	13	5 58		29	8		31 22		15	31		53 11
8	4	34	43		38	20	40			68	32	7	40	
		34	9	6 49		28	50		32 12		14	55		53 46
9	5	8	52		39	21	9			69	32	22	35	
		34	6	7 41		28	31		33 1		14	18		54 17
10	5	42	58		40	21	38			70	32	36	53	
		34	1	8 32		28	12		33 50		13	39		54 47
11	6	16	59		41	22	6			71	32	50	32	
		33	57	9 23		27	52		34 39		13	1		55 16
12	6	50	56		42	22	34			72	33	3	33	
		33	52	10 14		27	31		35 28		12	22		55 43
13	7	24	48		43	23	1			73	33	15	55	
		33	46	11 5		27	11		36 16		11	42		56 10
14	7	58	34		44	23	28			74	33	27	37	
		33	40	11 56		26	47		37 3		11	2		56 35
15	8	32	14		45	23	55			75	33	38	39	
		33	33	12 47		26	27		37 53		10	21		56 59
16	9	5	47		46	24	22			76	33	49	0	
		33	27	13 39		26	3		38 41		9	41		57 22
17	9	39	14		47	24	48			77	33	58	41	
		33	19	14 29		25	40		39 28		9	0		57 43
18	10	12	33		48	25	13			78	34	7	41	
		33	11	15 20		25	14		40 14		8	17		58 2
19	10	45	44		49	25	39			79	34	15	58	
		33	3	16 12		24	51		41 1		7	36		58 22
20	11	18	47		50	26	3			80	34	23	34	
		32	55	17 3		24	24		41 47		6	53		58 38
21	11	51	42		51	26	28			81	34	30	27	
		32	46	17 55		23	59		42 33		6	11		58 54
22	12	24	28		52	26	52			82	34	36	38	
		32	35	18 44		23	31		43 17		5	27		59 7
23	12	57	3		53	27	15			83	34	42	5	
		32	25	19 36		23	4		44 2		4	45		59 20
24	13	29	28		54	27	38			84	34	46	50	
		32	15	20 27		22	36		44 46		4	1		59 30
25	14	1	43		55	28	1			85	34	50	51	
		32	3	21 17		22	7		45 29		3	17		59 39
26	14	33	46		56	28	23			86	34	54	8	
		31	51	22 8		21	38		46 13		2	34		59 46
27	15	5	37		57	28	45			87	34	56	42	
		31	40	23 0		21	8		46 55		1	50		59 52
28	15	37	17		58	29	6			88	34	58	32	
		31	26	23 50		20	38		47 36		1	6		59 56
29	16	8	43		59	29	26			89	34	59	38	
		31	13	24 41		20	4		48 15		0	22		59 58
30	16	39	56		60	29	47			90	35	0	0	
		31	0	25 32		19	34		48 57		0	0		60 0

Defécédées.	ARCUS				Dif féré tia Late ralis.	Defécédées.	ARCUS				Dif féré tia Late ralis.	Defécédées.	ARCUS				Dif féré tia Late ralis.		
	Arcuales						Arcuales						Arcuales						
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	35	16	0 50		31	17	37	18	26 6		61	30	56	12	49	23		
2	1	10	32	1 41		32	18	8	53	26 56		62	31	15	51	50	2		
3	1	45	46	2 32		33	18	40	15	27 46		63	31	34	55	50	41		
4	2	21	0	3 22		34	19	11	21	28 36		64	31	53	26	51	17		
5	2	56	11	4 13		35	19	42	10	29 26		65	32	11	20	51	55		
6	3	31	21	5 3		36	20	12	43	30 15		66	32	28	38	52	30		
7	4	6	28	5 54		37	20	42	58	31 4		67	32	45	20	53	4		
8	4	41	32	6 44		38	21	12	56	31 54		68	33	1	26	53	36		
9	5	16	33	7 35		39	21	42	35	32 44		69	33	16	52	54	8		
10	5	51	30	8 25		40	22	11	55	33 34		70	33	31	40	54	39		
11	6	26	6	9 16		41	22	40	56	34 22		71	33	45	48	55	8		
12	7	1	10	10 7		42	23	9	37	35 10		72	33	59	16	55	38		
13	7	35	53	10 57		43	23	37	56	36 0		73	34	12	5	56	4		
14	8	10	30	11 47		44	24	5	54	36 50		74	34	24	12	56	30		
15	8	45	1	12 38		45	24	33	31	37 36		75	34	35	38	56	55		
16	9	19	26	13 28		46	25	0	46	38 23		76	34	46	22	57	18		
17	9	54	43	14 20		47	25	27	36	39 10		77	34	56	24	57	41		
18	10	27	53	15 11		48	25	54	2	39 57		78	35	5	43	58	0		
19	11	1	56	16 0		49	26	20	3	40 44		79	35	14	20	58	19		
20	11	35	50	16 51		50	26	45	40	41 30		80	35	22	12	58	38		
21	12	9	37	17 41		51	27	10	50	42 16		81	35	29	21	58	52		
22	12	43	12	18 33		52	27	35	33	43 1		82	35	35	45	59	7		
23	13	16	39	19 22		53	27	59	49	43 46		83	35	41	25	59	19		
24	13	49	55	20 13		54	28	23	37	44 31		84	35	46	20	59	30		
25	14	23	0	21 4		55	28	46	56	45 16		85	35	50	30	59	39		
26	14	55	54	21 54		56	29	9	47	45 58		86	35	53	54	59	48		
27	15	28	37	22 44		57	29	32	7	46 40		87	35	56	34	59	53		
28	16	1	7	23 35		58	29	53	56	47 22		88	35	58	28	59	58		
29	16	33	24	24 25		59	30	15	13	48 4		89	35	59	36	60	1		
30	17	5	28	25 15		60	30	35	59	48 44		90	36	0	0	60	0		

ARABIS					Dif ferē tia	ARABIS					Dif ferē tia	ARABIS					Dif ferē tia
Arcales						Arcales						Arcales					
Defcedētes	g	g	m	fa	Zate rallis	Defcedētes	g	g	m	fa	Zate rallis	Defcedētes	g	g	m	fa	Zate rallis
1		0	36	6	0 50	31	18		3	24	25 49		61	31	45	35	49 12
2	1		12	13	1 39	32	18		35	49	26 40		62	32	5	53	49 51
3	1	48	18	4	2 29	33	19		8	1	27 30		63	32	25	36	50 29
4	2	24	22	2	3 19	34	19		39	57	28 18		64	32	44	43	51 8
5	3	0	24	0	4 9	35	20		11	36	29 8		65	33	3	15	51 43
6	3	36	24	5	4 59	36	20		42	58	29 58		66	33	21	8	52 20
7	4	12	22	5	5 48	37	21		14	2	30 48		67	33	38	24	52 54
8	4	48	16	6	6 39	38	21		44	50	31 37		68	33	55	2	53 28
9	5	24	8	7	7 28	39	22		15	19	32 26		69	34	11	0	54 1
10	5	59	55	8	8 19	40	22		45	29	33 14		70	34	26	19	54 31
11	6	35	38	9	9 9	41	23		15	18	34 4		71	34	40	36	55 2
12	7	11	17	9	9 58	42	23		44	47	34 53		72	34	54	54	55 31
13	7	46	50	10	10 48	43	24		14	56	35 42		73	35	8	9	55 59
14	8	22	17	11	11 39	44	24		42	44	36 28		74	35	20	42	56 27
15	8	57	39	12	12 29	45	25		11	7	37 18		75	35	32	33	56 52
16	9	32	54	13	13 19	46	25		39	9	38 5		76	35	43	40	57 16
17	10	8	3	14	14 8	47	26		6	46	38 53		77	35	54	5	57 37
18	10	43	4	14 58		48	26		33	59	39 40		78	36	3	43	57 59
19	11	17	56	15 49		49	27		0	47	40 27		79	36	12	39	58 17
20	11	52	41	16 40		50	27		27	10	41 13		80	36	20	50	58 33
21	12	27	18	17 29		51	27		53	6	41 59		81	36	28	13	58 50
22	13	1	45	18 18		52	28		18	34	42 46		82	36	34	52	59 4
23	13	36	1	19 9		53	28		43	35	43 31		83	36	40	44	59 17
24	14	10	8	19 59		54	29		8	8	44 15		84	36	45	50	59 29
25	14	44	4	20 49		55	29		32	12	44 58		85	36	50	9	59 38
26	15	17	48	21 38		56	29		55	45	45 42		86	36	53	42	59 46
27	15	51	21	22 29		57	30		18	47	46 26		87	36	56	27	59 52
28	16	24	42	23 19		58	30		41	18	47 8		88	36	58	26	59 56
29	16	57	49	24 9		59	31		3	17	47 50		89	36	59	37	59 58
30	17	30	43	24 59		60	31		24	43	48 32		90	37	0	0	60 0

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Descedentes.					Descedentes.					Descedentes.				
Arcuales					Arcuales					Arcuales				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	0	36	56	0 49	31	18	29	13	25 32	61	32	34	47	48 58
2	1	13	52	1 38	32	19	2	29	26 22	62	32	55	44	49 38
3	1	50	47	2 28	33	19	35	31	27 10	63	33	16	5	50 17
4	2	27	41	3 17	34	20	8	15	28 1	64	33	35	51	50 55
5	3	4	33	4 6	35	20	40	44	28 50	65	33	54	58	51 33
6	3	41	23	4 55	36	21	12	56	29 39	66	34	13	28	52 8
7	4	18	10	5 45	37	21	44	50	30 29	67	34	31	18	52 44
8	4	54	55	6 34	38	22	16	27	31 18	68	34	48	30	53 18
9	5	31	36	7 23	39	22	47	45	32 6	69	35	5	1	53 51
10	6	8	14	8 12	40	23	18	43	32 56	70	35	20	50	54 24
11	6	44	47	9 1	41	23	49	22	33 45	71	35	35	58	54 59
12	7	21	15	9 51	42	24	19	40	34 34	72	35	50	25	55 26
13	7	57	38	10 40	43	24	49	38	35 22	73	36	4	8	55 54
14	8	33	56	11 29	44	25	19	12	36 11	74	36	17	9	56 20
15	9	10	8	12 19	45	25	48	25	36 58	75	36	29	25	56 45
16	9	46	13	13 8	46	26	17	14	37 46	76	36	40	56	57 9
17	10	22	11	13 58	47	26	45	39	38 34	77	36	51	42	57 32
18	10	58	2	14 47	48	27	13	39	39 22	78	37	1	42	57 53
19	11	33	45	15 37	49	27	41	14	40 9	79	37	10	56	58 13
20	12	9	21	16 26	50	28	8	23	40 55	80	37	19	23	58 31
21	12	44	47	17 15	51	28	35	5	41 43	81	37	27	3	58 48
22	13	20	3	18 6	52	29	1	20	42 28	82	37	33	56	59 3
23	13	55	10	18 55	53	29	27	6	43 13	83	37	40	1	59 17
24	14	30	7	19 45	54	29	52	23	43 57	84	37	45	19	59 27
25	15	4	53	20 34	55	30	17	10	44 43	85	37	49	47	59 38
26	15	39	26	21 25	56	30	41	27	45 27	86	37	53	28	59 45
27	16	13	50	22 14	57	31	5	13	46 10	87	37	56	19	59 52
28	16	48	1	23 3	58	31	28	26	46 53	88	37	58	22	59 56
29	17	21	58	23 53	59	31	51	7	47 34	89	37	59	35	59 59
30	17	55	42	24 43	60	32	13	15	48 16	90	38	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédentes		Arcuales			Defcédentes		Arcuales			Defcédentes		Arcuales		
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
1	0	37	45	0 49	31	18	54	45	25 15	61	33	23	45	48 43
2	1	15	30	1 38	32	19	28	51	26 4	62	33	45	22	49 24
3	1	51	15	2 23	33	20	2	41	26 53	63	34	6	22	50 4
4	2	30	58	3 14	34	20	36	16	27 42	64	34	26	46	50 42
5	3	8	39	4 3	35	21	9	34	28 31	65	34	46	31	51 20
6	3	46	18	4 51	36	21	42	35	29 20	66	35	5	36	51 58
7	4	23	55	5 40	37	22	15	19	30 10	67	35	24	2	52 34
8	5	1	29	6 28	38	22	47	45	30 58	68	35	41	48	53 10
9	5	38	59	7 17	39	23	19	51	31 48	69	35	58	52	53 44
10	6	16	26	8 5	40	23	51	39	32 37	70	36	15	14	54 17
11	6	51	48	8 54	41	24	23	7	33 26	71	36	30	57	54 45
12	7	31	6	9 42	42	24	54	14	34 14	72	36	45	51	55 17
13	8	8	18	10 32	43	25	25	0	35 2	73	37	0	2	55 47
14	8	45	25	11 20	44	25	55	23	35 51	74	37	13	29	56 14
15	9	22	27	12 8	45	26	25	23	36 39	75	37	26	10	56 40
16	9	59	21	12 58	46	26	55	0	37 27	76	37	38	5	57 6
17	10	36	9	13 46	47	27	24	13	38 15	77	37	49	14	57 28
18	11	12	49	14 36	48	27	53	1	39 2	78	37	59	35	57 51
19	11	49	22	15 25	49	28	21	23	39 50	79	38	9	9	58 11
20	12	25	47	16 13	50	28	49	18	40 38	80	38	17	54	58 30
21	13	2	2	17 3	51	29	16	48	41 23	81	38	25	51	58 47
22	13	38	9	17 51	52	29	43	48	42 9	82	38	32	59	59 2
23	14	14	5	18 41	53	30	10	19	42 56	83	38	39	18	59 16
24	14	49	52	19 29	54	30	36	21	43 41	84	38	44	46	59 28
25	15	25	27	20 19	55	31	1	53	44 26	85	38	49	25	59 37
26	16	0	51	21 8	56	31	26	54	45 11	86	38	53	13	59 44
27	16	36	4	21 57	57	31	51	23	45 54	87	38	56	11	59 50
28	17	11	4	22 46	58	32	15	19	46 39	88	38	58	18	59 56
29	17	45	51	23 36	59	32	38	41	47 22	89	38	59	34	59 59
30	18	20	25	24 26	60	33	1	51	48 2	90	39	0	0	60 0

ARCUS	Dif ferē tia Late ralis	Zatē ralis	ARCUS	Dif ferē tia Late ralis	Zatē ralis	ARCUS	Dif ferē tia Late ralis	Zatē ralis	
									Defcēdētes.
1	0	38 34	0 48	31	19 20 0	24 56	61	34 12 28	48 28
2	1	17 8	1 35	32	19 54 55	25 44	62	34 34 46	49 9
3	1	55 40	2 24	33	20 29 34	26 34	63	34 56 26	49 51
4	2	34 12	3 11	34	21 3 58	27 22	64	35 17 28	50 31
5	3	38 32	3 59	35	21 38 5	28 12	65	35 37 51	51 10
6	3	51 9	4 47	36	22 11 55	29 1	66	35 57 34	51 48
7	4	38 26	5 34	37	22 45 29	29 49	67	36 19 36	52 24
8	5	38 22	6 22	38	23 18 43	30 39	68	36 18 22	52 59
9	5	57 19	7 10	39	23 32 56	31 28	69	36 17 48	53 34
10	6	46 16	7 58	40	24 51 39	32 17	70	36 52 36	54 7
11	7	38 15	8 46	41	24 32 37	33 5	71	37 16 11	54 39
12	7	40 48	9 35	42	25 56 33	33 54	72	37 25 42	55 10
13	8	38 6	10 22	43	26 31 55	34 42	73	37 15 26	55 39
14	8	50 55	11 11	44	26 0 2	35 30	74	37 55 49	56 8
15	9	37 50	11 59	45	31 14 48	36 19	75	38 13 7	56 36
16	10	34 35	12 47	46	27 2 2	37 7	76	38 22 50	57 1
17	10	37 44	13 36	47	27 30 1	37 55	77	38 12 21	57 26
18	11	49 55	14 23	48	28 32 3	38 44	78	38 11 31	57 48
19	12	37 22	15 12	49	28 29 10	39 30	79	38 46 42	58 8
20	12	4 47	16 0	50	29 1 13	40 17	80	38 26 54	58 28
21	13	37 13	16 49	51	29 28 43	41 4	81	39 7 20	58 45
22	13	56 0	17 37	52	29 56 15	41 51	82	39 24 38	59 0
23	14	36 55	18 25	53	30 27 46	42 36	83	39 7 23	59 13
24	15	32 46	19 15	54	30 53 15	43 23	84	39 32 1	59 26
25	15	36 35	20 3	55	31 26 47	44 8	85	39 6 33	59 37
26	16	45 46	20 52	56	31 46 19	44 54	86	39 49 2	59 47
27	16	36 13	21 40	57	32 25 12	45 38	87	39 52 3	59 53
28	17	58 1	22 30	58	32 37 17	46 20	88	39 4 48	59 57
29	17	35 49	23 17	59	33 24 41	47 4	89	39 56 2	60 0
30	18	33 50	24 7	60	33 1 58	47 47	90	39 58 1	60 0

ARCUS					ARCUS					ARCUS				
Defécédées					Defécédées					Defécédées				
Arecas					Arecas					Arecas				
g	g	m	fa	Diffé- tial Lata- ralis	g	g	m	fa	Diffé- tial Lata- ralis	g	g	m	fa	Diffé- tial Lata- ralis
1	0	39	22		31	19	44	56		61	35	0	56	
		39	21	0 47			35	43	24 37			22	59	48 14
2	1	18	43		32	20	20	39		62	35	23	55	
		39	21	1 34			35	29	25 26			22	22	48 55
3	1	58	4		33	20	56	8		63	35	46	17	
		39	19	2 21			35	12	26 14			21	42	49 36
4	2	37	23		34	21	31	20		64	36	7	59	
		39	18	3 8			34	57	27 4			21	2	50 17
5	3	16	41		35	22	6	17		65	36	29	1	
		39	15	3 55			34	39	27 52			20	21	50 56
6	3	55	56		36	22	40	56		66	36	49	22	
		39	13	4 43			34	22	28 41			19	38	51 34
7	4	35	9		37	23	15	18		67	37	9	0	
		39	10	5 30			34	4	29 29			18	57	52 12
8	5	14	19		38	23	49	22		68	37	27	57	
		39	7	6 17			33	45	30 18			18	13	52 48
9	5	53	26		39	24	23	7		69	37	46	10	
		39	3	7 4			33	26	31 7			17	28	53 23
10	6	32	29		40	24	56	33		70	38	3	38	
		38	59	7 52			33	5	31 55			16	43	53 57
11	7	11	28		41	25	29	38		71	38	20	21	
		38	55	8 39			32	44	32 44			15	57	54 30
12	7	50	23		42	26	2	22		72	38	36	18	
		38	42	9 26			32	22	33 33			15	10	55 3
13	8	29	12		43	26	34	44		73	38	51	28	
		38	44	10 14			32	0	34 22			14	23	55 34
14	9	7	56		44	27	6	44		74	39	5	51	
		38	38	11 1			31	37	35 10			13	35	56 3
15	9	46	34		45	27	38	21		75	39	19	26	
		38	32	11 48			31	13	35 58			12	46	56 30
16	10	25	6		46	28	9	34		76	39	32	12	
		38	25	12 35			30	49	36 46			11	56	56 56
17	11	3	31		47	28	40	23		77	39	44	8	
		38	17	13 23			30	24	37 33			11	6	57 21
18	11	41	48		48	29	10	47		78	39	55	14	
		38	11	14 12			29	56	38 21			10	14	57 43
19	12	19	59		49	29	40	43		79	40	5	28	
		38	1	14 59			29	30	39 10			9	24	58 5
20	12	58	0		50	30	10	13		80	40	14	52	
		37	54	15 47			29	2	39 57			8	31	58 23
21	13	35	54		51	30	39	15		81	40	23	23	
		37	43	16 35			28	33	40 44			7	38	58 42
22	14	13	37		52	31	7	48		82	40	31	1	
		37	34	17 23			28	3	41 31			6	46	58 58
23	14	51	11		53	31	35	51		83	40	37	47	
		37	25	18 11			27	34	42 18			5	53	59 13
24	15	28	36		54	32	3	25		84	40	43	40	
		37	13	18 58			27	2	43 5			4	59	59 25
25	16	5	49		55	32	30	27		85	40	48	39	
		37	2	19 47			26	32	43 50			4	5	59 35
26	16	42	51		56	32	56	59		86	40	52	44	
		36	50	20 35			25	56	44 34			3	10	59 44
27	17	19	41		57	33	22	55		87	40	55	54	
		36	39	21 24			25	23	45 20			2	17	59 51
28	17	56	20		58	33	48	18		88	40	58	11	
		36	24	22 11			24	49	46 4			1	22	59 56
29	18	32	44		59	34	13	7		89	40	59	33	
		36	14	23 1			24	13	46 48			0	27	59 58
30	19	8	58		60	34	37	20		90	41	0	0	
		35	58	23 49			23	36	47 31			0	0	60 0

ARACHES					ARACHES					ARACHES				
Defcédées.					Defcédées.					Defcédées.				
Arcales					Arcales					Arcales				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
1	0	40	9		31	20	9	33		61	35	49	10	
		40	8	0 46			36	32	24 18			23	40	47 58
2	1	20	17		32	20	46	5		62	36	12	50	
		40	8	1 33			36	17	25 6			23	3	48 42
3	2	0	25		33	21	22	22		63	36	35	53	
		40	6	2 19			36	2	25 55			22	23	49 22
4	2	40	31		34	21	58	24		64	36	58	16	
		40	5	3 6			35	45	26 42			21	41	50 2
5	3	20	36		35	22	34	9		65	37	19	57	
		40	3	3 52			35	28	27 31			20	59	50 42
6	4	0	39		36	23	9	37		66	37	40	56	
		40	0	4 38			35	10	28 19			20	16	51 21
7	4	40	39		37	23	44	47		67	38	1	12	
		39	57	5 24			34	53	29 9			19	33	52 0
8	5	20	36		38	24	19	40		68	38	20	45	
		39	54	6 11			34	34	29 58			18	48	52 37
9	6	0	30		39	24	54	14		69	38	39	33	
		39	51	6 58			34	14	30 46			18	2	53 13
10	6	40	21		40	25	28	28		70	38	57	35	
		39	46	7 44			33	54	31 34			17	16	53 49
11	7	20	7		41	26	2	22		71	39	14	51	
		39	42	8 31			33	33	32 22			16	30	54 23
12	7	59	49		42	26	35	55		72	39	31	21	
		39	37	9 17			33	11	33 11			15	41	54 54
13	8	39	26		43	27	9	6		73	39	47	2	
		39	31	10 4			32	48	33 59			14	52	55 25
14	9	18	57		44	27	41	54		74	40	1	54	
		39	25	10 51			32	25	34 48			14	2	55 55
15	9	58	22		45	28	14	19		75	40	15	56	
		39	12	11 38			32	1	35 36			13	12	56 23
16	10	37	41		46	28	46	20		76	40	29	8	
		39	13	12 24			31	36	36 24			12	21	56 49
17	11	16	54		47	29	17	56		77	40	41	29	
		39	6	13 12			31	12	37 14			11	28	57 15
18	11	56	0		48	29	49	8		78	40	52	57	
		38	58	13 59			30	45	38 1			10	36	57 38
19	12	34	58		49	30	19	53		79	41	3	33	
		38	49	14 46			30	17	38 48			2	42	58 0
20	13	13	47		50	30	50	10		80	41	13	15	
		38	42	15 33			29	49	39 36			8	50	58 21
21	13	52	29		51	31	19	59		81	41	22	5	
		38	31	16 20			29	20	40 23			7	54	58 38
22	14	31	0		52	31	49	19		82	41	29	59	
		38	22	17 8			28	50	41 10			7	1	58 56
23	15	9	22		53	32	18	9		83	41	37	0	
		38	12	17 55			28	21	41 58			6	5	59 11
24	15	47	34		54	32	46	30		84	41	43	5	
		38	2	18 43			27	47	42 43			5	9	59 24
25	16	25	36		55	33	14	17		85	41	48	14	
		37	50	19 30			27	16	43 31			4	14	59 36
26	17	3	26		56	33	41	33		86	41	52	28	
		37	39	20 18			26	42	44 16			3	17	59 44
27	17	41	5		57	34	8	15		87	41	55	45	
		37	26	21 6			26	7	45 1			2	22	59 52
28	18	18	31		58	34	34	22		88	41	58	7	
		37	14	21 54			25	33	45 46			1	24	59 56
29	18	55	45		59	34	59	55		89	41	59	31	
		37	2	22 43			24	56	46 30			0	29	60 0
30	19	32	47		60	35	24	51		90	42	0	0	
		36	46	23 29			24	19	47 15			0	0	60 0

TRANSVER										43	SALTS									
ARCUS					Diff feren- tia	ARCUS					Diff feren- tia	ARCUS					Diff feren- tia			
Defcédentes					Late- ralis	Defcédentes					Late- ralis	Defcédentes					Late- ralis			
Arcuales						Arcuales						Arcuales								
g	m	fa	Rate- ralis		g	m	fa	Rate- ralis		g	m	fa	Rate- ralis							
1	0	40	55	0 46	31	20	33	51	23 58	61	36	37	8	47 41						
2	1	21	50	1 31	32	21	11	11	24 47	62	37	1	32	48 23						
3	2	2	44	2 17	33	21	48	17	25 34	63	37	25	15	49 6						
4	2	43	37	3 2	34	22	25	6	26 22	64	37	48	18	49 48						
5	3	24	28	3 48	35	23	1	40	27 11	65	38	10	39	50 28						
6	4	5	17	4 33	36	23	37	56	27 58	66	38	32	17	51 8						
7	4	46	3	5 20	37	24	13	56	28 48	67	38	53	12	51 48						
8	5	26	47	6 5	38	24	49	38	29 34	68	39	13	22	52 26						
9	6	7	28	6 51	39	25	25	0	30 23	69	39	32	46	53 3						
10	6	48	5	7 37	40	26	0	2	31 12	70	39	51	24	53 38						
11	7	28	38	8 22	41	26	34	44	32 0	71	40	9	14	54 12						
12	8	9	6	9 9	42	27	9	6	32 48	72	40	26	15	54 46						
13	8	49	30	9 54	43	27	43	5	33 37	73	40	42	27	55 17						
14	9	29	48	10 40	44	28	16	42	34 25	74	40	57	49	55 47						
15	10	10	0	11 27	45	28	49	55	35 15	75	41	12	19	56 17						
16	10	50	5	12 14	46	29	22	44	36 4	76	41	25	57	56 44						
17	11	30	6	12 59	47	29	55	10	36 50	77	41	38	44	57 11						
18	12	9	59	13 46	48	30	27	9	37 38	78	41	50	35	57 36						
19	12	49	44	14 32	49	30	58	41	38 26	79	42	1	33	57 58						
20	13	29	20	15 19	50	31	29	46	39 14	80	42	11	36	58 19						
21	14	8	49	16 5	51	32	0	22	40 2	81	42	20	43	58 39						
22	14	48	8	16 52	52	32	30	29	40 51	82	42	28	55	58 55						
23	15	27	17	17 40	53	33	0	7	41 37	83	42	36	11	59 9						
24	16	6	17	18 26	54	33	29	13	42 24	84	42	42	29	59 23						
25	16	45	6	19 14	55	33	57	48	43 9	85	42	47	50	59 33						
26	17	23	44	20 2	56	34	25	49	43 56	86	42	52	12	59 43						
27	18	2	11	20 49	57	34	53	16	44 42	87	42	55	37	59 50						
28	18	40	25	21 36	58	35	20	8	45 28	88	42	58	3	59 56						
29	19	18	28	22 23	59	35	46	25	46 12	89	42	59	31	59 59						
30	19	56	16	23 11	60	36	12	6	46 56	90	43	0	0	60 0						

ARCUS					ARCUS					ARCUS				
Defcédées.					Defcédées					Defcédées				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
1	0	41	41	0 45	31	20	57	38	23 38	61	37	24	49	47 22
2	1	23	21	1 30	32	21	35	58	24 25	62	37	49	55	48 6
3	2	5	1	2 14	33	22	13	51	25 13	63	38	14	21	48 49
4	2	46	39	2 59	34	22	51	28	26 1	64	38	38	6	49 32
5	3	28	16	3 44	35	23	28	51	26 47	65	39	1	7	50 14
6	4	9	50	4 29	36	24	5	54	27 37	66	39	23	25	50 55
7	4	51	23	5 14	37	24	42	44	28 23	67	39	45	0	51 33
8	5	32	52	5 59	38	25	19	12	29 13	68	40	5	48	52 12
9	6	14	19	6 44	39	25	55	23	30 0	69	40	25	49	52 49
10	6	55	42	7 29	40	26	31	14	30 48	70	40	45	2	53 26
11	7	37	0	8 15	41	27	6	44	31 37	71	41	3	26	54 2
12	8	18	15	8 59	42	27	41	54	32 25	72	41	21	1	54 35
13	8	59	24	9 45	43	28	16	42	33 13	73	41	37	44	55 10
14	9	40	28	10 30	44	28	51	7	34 3	74	41	53	36	55 41
15	10	21	27	11 15	45	29	25	10	34 50	75	42	8	36	56 11
16	11	2	19	12 2	46	29	58	48	35 38	76	42	22	41	56 40
17	11	43	5	12 48	47	30	32	0	36 27	77	42	35	55	57 4
18	12	23	45	13 32	48	31	4	47	37 16	78	42	48	11	57 30
19	13	4	16	14 19	49	31	37	7	38 4	79	42	59	31	57 53
20	13	44	39	15 5	50	32	31	24	38 53	80	43	9	55	58 15
21	14	24	54	15 51	51	32	40	24	39 40	81	43	19	22	58 34
22	15	5	0	16 37	52	33	11	20	40 27	82	43	27	50	58 52
23	15	44	57	17 23	53	33	41	44	41 14	83	43	35	20	59 8
24	16	24	43	18 10	54	34	11	37	42 2	84	43	41	52	59 21
25	17	4	20	18 56	55	34	40	57	42 49	85	43	47	23	59 33
26	17	43	46	19 42	56	35	9	45	43 35	86	43	51	55	59 43
27	18	23	0	20 28	57	35	37	58	44 23	87	43	55	27	59 50
28	19	2	1	21 17	58	36	5	36	45 9	88	43	57	59	59 54
29	19	40	51	22 4	59	36	32	37	45 54	89	43	59	30	59 58
30	20	19	27	22 50	60	36	59	2	46 38	90	44	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
Arcuales					Arcuales					Arcuales				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	0	42	26	0 44	31	21	21	27	23 18	61	38	12	11	
2	1	24	51		32	22	0	23		62	38	25	50	47 3
3	2	42	24	1 28	33	22	38	41	24 6	63	39	38	1	47 47
4	2	7	15		34	23	39	4		64	39	25	9	
5	3	42	23	2 12	35	23	38	25	24 51	65	39	24	28	48 33
6	4	49	38		36	24	37	2		66	40	27	38	
7	4	42	22	2 57	37	25	38	9	25 39	67	40	23	43	49 14
8	5	42	19	3 40	38	25	37	53	26 27	68	40	51	21	
9	6	42	18	4 25	39	26	37	36	27 15	69	41	22	52	49 57
10	7	56	37		40	27	37	18	28 2	70	41	14	20	50 38
11	7	42	14	5 8	41	28	37	18		71	41	22	13	
12	8	38	51		42	28	36	58	28 49	72	42	36	33	51 19
13	8	42	12	5 53	43	29	36	39		73	42	20	38	51 57
14	9	42	3	6 37	44	29	36	39	29 37	74	42	18	38	52 37
15	9	42	0		45	30	36	19	30 25	75	43	19	0	53 15
16	10	42	4	7 21	46	30	35	58	31 13	76	43	38	28	53 51
17	10	42	11	8 6	47	31	35	19	32 1	77	43	15	36	54 27
18	11	41	55	8 51	48	31	35	16	32 49	78	43	17	18	54 27
19	11	41	49	9 35	49	32	34	26		79	44	32	54	54 59
20	12	41	49	10 20	50	32	34	1	33 38	80	44	32	59	
21	13	32	42		51	33	33	36		81	44	12	42	56 59
22	13	41	39	11 5	52	33	33	8	34 26	82	44	45	41	
23	14	41	31	11 49	53	34	32	11	34 26	83	44	11	43	57 24
24	15	55	53		54	34	32	42	35 15	84	44	57	24	
25	15	41	24	12 34	55	35	31	47		85	44	8	46	57 49
26	16	41	18	13 20	56	35	31	11	37 39	86	44	26	42	
27	17	41	9	14 4	57	36	30	41	38 27	87	44	7	46	58 51
28	17	59	44		58	36	30	2		88	44	34	28	
29	18	40	1	14 50	59	37	29	1	39 16	89	44	6	45	59 7
30	18	40	52	15 35	60	37	28	21		90	45	41	13	59 21
31	19	40	45			38	27	46	42 27		45	5	43	
32	19	40	40	16 21		38	27	46			45	46	56	
33	20	40	33	17 6		39	26	20	44 0		45	4	42	59 33
34	20	40	23	17 52		40	25	1	43 15		45	51	38	
35	21	40	16	18 38		41	24	39			45	3	39	59 43
36	21	40	0	19 24		42	23	21			45	55	47	
37	22	39	50	20 12		43	22	44			45	2	36	59 50
38	22	39	37	20 57		44	21	46			45	57	51	
39	23	39	28	21 43		45	20	41	44 46		45	1	35	59 57
40	23	39	17	22 31		46	19	39			45	59	28	
						46	18	27	45 33		45	0	32	60 0
						46	17	26			45	0	0	60 0
						46	16	26			45	0	0	60 0

ARCUS					ARCUS					ARCUS				
Dif ferētia					Dif ferētia					Dif ferētia				
Lat. ralis.					Lat. ralis.					Lat. ralis.				
Descēdētes.	Arcuales				Descēdētes.	Arcuales				Descēdētes.	Arcuales			
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	43	10	0 43	31	21	44	45	22 55	61	38	59	14	46 45
2	1	26	19	1 26	32	22	24	29	23 40	62	39	25	48	47 30
3	2	9	27	2 10	33	23	3	55	24 29	63	39	51	43	48 13
4	2	52	35	2 53	34	23	43	8	25 16	64	40	15	52	48 57
5	3	35	40	3 37	35	24	22	5	26 3	65	40	41	18	49 40
6	4	18	44	4 20	36	25	0	46	26 50	66	41	4	58	50 23
7	5	1	45	5 4	37	25	39	9	27 37	67	41	27	52	51 4
8	5	44	44	5 47	38	26	17	14	28 25	68	41	49	57	51 46
9	6	27	40	6 30	39	26	55	0	29 13	69	42	11	15	52 25
10	7	10	32	7 14	40	27	32	27	30 1	70	42	31	43	53 3
11	7	53	21	7 57	41	28	9	34	30 49	71	42	51	19	53 40
12	8	36	5	8 41	42	28	46	20	31 36	72	43	10	3	54 15
13	9	18	44	9 25	43	29	22	44	32 26	73	43	27	53	54 50
14	10	1	18	10 9	44	29	58	48	33 12	74	43	44	49	55 23
15	10	43	29	10 53	45	30	34	26	34 1	75	44	0	49	55 54
16	11	26	10	11 37	46	31	9	41	34 49	76	44	15	52	56 25
17	12	8	27	12 22	47	31	44	30	35 38	77	44	29	58	56 54
18	12	50	37	13 6	48	32	18	53	36 28	78	44	43	5	57 21
19	13	32	39	13 50	49	32	52	50	37 16	79	44	55	13	57 46
20	14	14	34	14 34	50	33	26	20	38 4	80	45	6	20	58 9
21	14	56	20	15 20	51	33	59	20	38 54	81	45	16	28	58 28
22	15	37	58	16 4	52	34	31	50	39 40	82	45	25	33	58 46
23	16	19	26	16 50	53	35	3	50	40 28	83	45	33	35	59 3
24	17	0	45	17 35	54	35	35	18	41 17	84	45	40	34	59 18
25	17	41	54	18 20	55	36	6	13	42 4	85	45	46	29	59 31
26	18	22	52	19 5	56	36	36	35	42 51	86	45	51	21	59 41
27	19	3	40	19 51	57	37	6	21	43 38	87	45	55	7	59 50
28	19	44	15	20 38	58	37	35	31	44 25	88	45	57	50	59 55
29	20	24	38	21 23	59	38	4	4	45 12	89	45	59	28	59 58
30	21	4	48	22 9	60	38	31	59	45 58	90	46	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defécettes					Defécettes					Defécettes				
Arcuales					Arcuales					Arcuales				
g	g	m	fa	late- ralis	g	g	m	fa	late- ralis	g	g	m	fa	late- ralis
1	0	43	51	0 42	31	22	7	40	22 34	61	39	45	59	46 23
2	1	27	45	1 25	32	22	48	9	23 20	62	40	13	18	47 9
3	2	11	37	2 7	33	23	28	24	24 6	63	40	39	56	47 53
4	2	55	28	2 49	34	24	8	24	24 52	64	41	5	49	48 39
5	3	39	17	3 32	35	24	48	8	25 40	65	41	30	58	49 23
6	4	23	4	4 15	36	25	27	36	26 26	66	41	55	21	50 6
7	5	6	49	4 57	37	26	6	46	27 13	67	42	18	56	50 49
8	5	50	31	5 40	38	26	45	39	28 0	68	42	41	43	51 30
9	6	34	10	6 23	39	27	24	13	28 48	69	43	3	40	52 10
10	7	17	46	7 6	40	28	2	28	29 35	70	43	24	46	52 49
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12	8	44	46	8 32	42	29	17	56	31 12	72	44	4	18	54 4
13	9	28	9	9 15	43	29	55	10	31 59	73	44	22	43	54 40
14	10	11	27	9 58	44	30	32	0	32 47	74	44	40	12	55 14
15	10	54	40	10 41	45	31	8	27	33 36	75	44	56	43	55 47
16	11	37	47	11 25	46	31	44	30	34 23	76	45	12	17	56 18
17	12	20	49	12 8	47	32	20	8	35 13	77	45	26	52	56 46
18	13	3	43	12 51	48	32	55	21	36 1	78	45	40	26	57 13
19	13	46	29	13 36	49	33	30	6	36 49	79	45	52	59	57 38
20	14	29	8	14 20	50	34	4	23	37 37	80	46	4	29	58 2
21	15	11	40	15 3	51	34	38	12	38 25	81	46	14	56	58 24
22	15	54	2	15 48	52	35	11	30	39 14	82	46	24	19	58 45
23	16	36	16	16 32	53	35	44	18	40 4	83	46	32	38	59 3
24	17	18	20	17 17	54	36	16	35	40 51	84	46	39	52	59 17
25	18	0	14	18 2	55	36	48	17	41 40	85	46	46	0	59 30
26	18	41	57	18 48	56	37	19	26	42 27	86	46	51	2	59 40
27	19	23	31	19 31	57	37	49	59	43 16	87	46	54	57	59 49
28	20	4	53	20 16	58	38	19	56	44 3	88	46	57	45	59 54
29	20	46	1	21 2	59	38	49	16	44 50	89	46	59	26	59 58
30	21	26	57	21 48	60	39	17	57	45 37	90	47	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédées.					Defcédées.					Defcédées.				
Arcalos					Arcalos					Arcalos				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
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2	1	29 10			32	23	11 29			62	41	0 27		
		44 34	1 28				41 1	22 58				27 22	46 48	
3	2	13 44			33	23	52 30			63	41	27 49		
		44 33	2 5				40 46	23 43				26 39	47 34	
4	2	58 17			34	24	33 16			64	41	54 28		
		44 32	2 47				40 32	24 30				25 53	48 20	
5	3	42 49			35	25	13 48			65	42	20 21		
		44 30	3 28				40 14	25 14				25 6	49 4	
6	4	27 19			36	25	54 2			66	42	45 27		
		44 27	4 10				39 57	26 1				24 18	49 48	
7	5	11 46			37	26	33 59			67	43	9 45		
		44 25	4 52				39 40	26 48				23 38	50 31	
8	5	56 11			38	27	13 39			68	43	33 13		
		44 22	5 34				39 22	27 35				22 37	51 13	
9	6	40 33			39	27	53 1			69	43	55 50		
		44 19	6 16				39 2	28 22				21 45	51 54	
10	7	24 52			40	28	32 3			70	44	17 35		
		44 15	6 58				38 44	29 10				20 51	52 35	
11	8	9 7			41	29	10 47			71	44	38 26		
		44 11	7 39				38 21	29 56				19 56	53 15	
12	8	53 18			42	29	49 8			72	44	58 22		
		44 6	8 22				38 1	30 45				19 1	53 53	
13	9	37 24			43	30	27 9			73	45	17 23		
		44 1	9 4				37 38	31 32				18 3	54 29	
14	10	21 25			44	31	4 47			74	45	35 26		
		43 56	9 47				37 16	32 20				17 4	55 4	
15	11	5 21			45	31	42 3			75	45	52 30		
		43 51	10 29				36 50	33 8				16 5	55 37	
16	11	49 12			46	32	18 53			76	46	8 35		
		43 45	11 13				36 28	33 57				15 3	56 8	
17	12	32 57			47	32	55 21			77	46	23 38		
		43 37	11 55				36 1	34 45				14 1	56 39	
18	13	16 34			48	33	31 22			78	46	37 39		
		43 31	12 38				35 33	35 33				12 58	57 8	
19	14	0 5			49	34	6 55			79	46	50 37		
		43 23	13 21				35 6	36 22				11 54	57 35	
20	14	43 28			50	34	42 1			80	47	2 31		
		43 15	14 4				34 36	37 11				10 49	58 0	
21	15	26 43			51	35	16 37			81	47	13 20		
		43 7	14 48				34 7	38 0				9 44	58 23	
22	16	9 50			52	35	50 44			82	47	23 4		
		42 58	15 31				33 38	38 50				8 37	58 42	
23	16	52 48			53	36	24 22			83	47	31 41		
		42 49	16 15				33 4	39 37				7 28	59 0	
24	17	35 37			54	36	57 26			84	47	39 9		
		42 39	16 58				32 31	40 25				6 21	59 16	
25	18	18 16			55	37	29 57			85	47	45 30		
		42 29	17 43				31 56	41 14				5 12	59 30	
26	19	0 45			56	38	1 53			86	47	50 42		
		42 17	18 27				31 22	42 3				4 4	59 41	
27	19	43 2			57	38	33 15			87	47	54 46		
		42 7	19 12				30 44	42 51				2 53	59 49	
28	20	25 9			58	39	3 59			88	47	57 39		
		41 54	19 56				30 7	43 40				1 45	59 56	
29	21	7 33			59	39	34 6			89	47	59 24		
		41 42	20 42				29 28	44 27				0 36	60 0	
30	21	48 45			60	40	3 34			90	48	0 0		
		41 29	21 27				28 48	45 14				0 0	60 0	

ARCUS					Dif ferē tia Late ralis	ARCUS					Dif ferē tia Late ralis	ARCUS					Dif ferē tia Late ralis
Defcēdētēs		Arcuales				Defcēdētēs		Arcuales				Defcēdētēs		Arcuales			
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3	2	15	49	2 3	33	24	16	13	23 20	63	42	15	23	47 13			
4	3	1	4	2 43	34	24	57	46	24 5	64	42	42	48	47 58			
5	3	46	17	3 25	35	25	39	2	24 51	65	43	9	25	48 44			
6	4	31	29	4 5	36	26	20	3	25 37	66	43	35	15	49 29			
7	5	16	38	4 46	37	27	0	47	26 23	67	44	0	16	50 13			
8	6	1	45	5 27	38	27	41	14	27 9	68	44	24	26	50 56			
9	6	46	49	6 8	39	28	21	23	27 55	69	44	47	44	51 40			
10	7	31	50	6 49	40	29	1	13	28 43	70	45	10	10	52 21			
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12	9	1	40	8 12	42	30	19	53	30 17	72	45	52	15	53 30			
13	9	46	28	8 54	43	30	58	41	31 5	73	46	11	52	54 17			
14	10	31	12	9 35	44	31	37	7	31 53	74	46	40	30	54 53			
15	11	15	50	10 18	45	32	15	11	32 42	75	46	48	7	55 28			
16	12	0	25	10 59	46	32	52	50	33 30	76	47	4	43	56 1			
17	12	44	52	11 41	47	33	30	6	34 17	77	47	20	17	56 33			
18	13	29	12	12 23	48	34	6	55	35 6	78	47	34	47	57 2			
19	14	13	26	13 5	49	34	43	17	35 55	79	47	48	12	57 29			
20	14	57	32	13 48	50	35	19	12	36 42	80	48	0	31	57 54			
21	15	41	31	14 31	51	35	54	37	37 33	81	48	11	43	58 17			
22	16	25	21	15 14	52	36	29	34	38 21	82	48	21	46	58 38			
23	17	9	3	15 56	53	37	3	59	39 10	83	48	30	41	58 56			
24	17	52	35	16 41	54	37	37	51	39 59	84	48	38	25	59 13			
25	18	35	59	17 23	55	38	11	11	40 47	85	48	45	0	59 27			
26	19	10	12	18 8	56	38	43	56	41 38	86	48	50	23	59 39			
27	20	2	14	18 51	57	39	16	6	42 26	87	48	54	35	59 48			
28	20	45	5	19 35	58	39	47	39	43 14	88	48	57	35	59 55			
29	21	27	45	20 19	59	40	18	33	44 2	89	48	59	24	59 58			
30	22	10	12	21 4	60	40	48	48	44 50	90	49	0	0	60 0			

ARCUS					ARCUS					ARCUS				
Defécécés.					Defécécés.					Defécécés.				
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4	3	3	47	2 40	34	25	21	51	2 23 39	64	43	30	46	47 37
5	3	49	42	3 20	35	26	3	57	24 24	65	43	58	9	48 23
6	4	35	34	4 0	36	26	45	40	25 10	66	44	24	44	49 9
7	5	21	24	4 41	37	27	27	10	25 56	67	44	50	29	49 54
8	6	7	12	5 21	38	28	8	23	26 42	68	45	15	22	50 40
9	6	52	57	6 1	39	28	49	18	27 30	69	45	39	24	51 22
10	7	38	39	6 41	40	29	29	56	28 15	70	46	2	31	52 4
11	8	24	18	7 21	41	30	10	13	29 2	71	46	24	41	52 46
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13	9	55	22	8 43	43	31	29	46	30 36	73	47	6	9	54 5
14	10	40	47	9 25	44	32	9	0	31 24	74	47	25	23	54 42
15	11	26	8	10 5	45	32	47	55	32 11	75	47	43	35	55 19
16	12	11	24	10 45	46	33	26	20	33 0	76	48	0	44	55 52
17	12	56	33	11 27	47	34	4	24	33 49	77	48	16	50	56 24
18	13	41	35	12 9	48	34	42	1	34 36	78	48	31	49	56 54
19	14	26	31	12 50	49	35	19	12	35 25	79	48	45	41	57 23
20	15	11	20	13 32	50	35	55	54	36 16	80	48	58	25	57 49
21	15	56	2	14 13	51	36	32	10	37 4	81	49	10	0	58 13
22	16	40	33	14 56	52	37	55	45	37 52	82	49	20	24	58 34
23	17	24	59	15 38	53	37	43	9	38 41	83	49	29	37	58 54
24	18	9	16	16 20	54	38	17	50	39 32	84	49	37	38	59 13
25	18	53	22	17 4	55	38	51	58	40 22	85	49	44	27	59 28
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27	20	21	5	18 30	57	39	58	32	41 59	87	49	54	23	59 49
28	21	4	40	19 14	58	40	30	53	42 48	88	49	57	30	59 55
29	21	48	4	19 57	59	41	2	35	43 37	89	49	59	22	60 0
30	22	31	16	20 40	60	41	33	38	44 26	90	50	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defécédées					Defécédées					Defécédées				
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3	2	19	52	1 57	33	25	2	27	22 30	63	44	29	42	45 37
4	3	6	27	2 37	34	25	45	30	23 14	64	44	18	25	46 26
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6	4	32	34	3 55	36	27	10	50		66	45	13	53	48 2
7	5	46	25	4 34	37	27	42	16	24 43	67	45	26	30	48 49
8	6	26	5	5 14	38	28	53	6	25 28	68	45	40	23	49 35
9	6	46	35	5 53	39	28	41	43	26 15	69	46	25	39	50 19
10	7	32	33	6 33	40	29	16	48	27 0	70	46	30	46	51 4
11	8	46	22	7 13	41	29	41	23	27 46	71	46	23	49	51 47
12	9	31	39	7 52	42	30	58	11	28 33	72	47	54	35	52 30
13	10	46	15	8 32	43	31	40	44	29 20	73	47	21	53	53 12
14	10	17	54	9 12	44	32	19	59	30 7	74	48	39	20	54 5
15	11	46	11	9 52	45	32	40	2	31 43	75	48	19	51	55 12
16	12	4	5	10 33	46	33	0	22	32 30	76	48	10	14	56 5
17	13	46	7	11 13	47	34	40	2	33 18	77	48	17	42	57 42
18	14	50	12	11 54	48	35	18	52	34 57	78	49	56	36	58 14
19	15	35	44	12 35	49	36	38	12	35 45	79	49	13	14	59 4
20	16	45	37	13 16	50	37	16	37	36 33	80	49	28	43	60 21
21	17	45	23	13 57	51	38	32	10	37 4	81	50	11	52	61 10
22	18	10	15	14 38	52	39	9	14	38 13	82	50	10	45	62 13
23	19	45	6	15 21	53	40	36	31	39 52	83	50	18	58	63 33
24	20	45	31	16 44	54	41	36	3	40 43	84	50	9	33	64 53
25	21	40	32	17 26	55	42	21	50	41 31	85	50	28	31	65 9
26	22	44	59	18 9	56	43	35	32	42 20	86	50	36	51	66 23
27	23	44	19	18 51	57	44	57	22	43 11	87	50	30	4	67 4
28	24	44	7	19 34	58	45	34	58	44 0	88	50	43	55	68 25
29	25	44	25	20 18	59	46	32	31	45 0	89	50	5	47	69 42
30	26	43	44	20 58	60	47	46	12		90	50	30	40	70 36

ARCUS					ARCUS					ARCUS				
Defcédentes.					Defcédentes.					Defcédentes.				
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3	2	21 49	47 15	1 55	33	25	24 57	43 47	22 3	63	44	35 51	29	46 2
4	3	9 4	47 13	2 33	34	26	8 44	43 32	22 47	64	45	5 36	28	46 50
5	3	56 17	47 12	3 12	35	26	52 16	43 17	23 31	65	45	34 34	8	47 38
6	4	43 29	47 10	3 50	36	27	35 33	43 1	24 16	66	46	2 42	27	48 25
7	5	30 39	47 8	4 28	37	28	18 34	42 46	25 1	67	46	29 58	26	49 13
8	6	17 47	47 4	5 6	38	29	1 20	42 28	25 46	68	46	56 21	25	49 59
9	7	4 51	47 2	5 46	39	29	43 48	42 9	26 31	69	47	21 50	24	50 46
10	7	51 53	46 59	6 24	40	30	25 57	41 51	27 18	70	47	46 22	23	51 31
11	8	38 52	46 54	7 2	41	31	7 48	41 31	28 3	71	48	9 57	22	52 14
12	9	25 46	46 51	7 42	42	31	49 19	41 10	28 50	72	48	32 32	21	52 55
13	10	12 37	46 47	8 21	43	32	30 29	40 51	29 38	73	48	54 5	20	53 36
14	10	59 24	46 41	9 0	44	33	11 20	40 27	30 24	74	49	14 35	19	54 15
15	11	46 5	46 37	9 41	45	33	51 47	40 3	31 11	75	49	33 59	18	54 54
16	12	32 42	46 31	10 19	46	34	31 50	39 40	32 0	76	49	52 18	17	55 31
17	13	19 13	46 25	10 58	47	35	11 30	39 14	32 48	77	50	9 28	16	56 7
18	14	5 38	46 18	11 38	48	35	50 44	38 50	33 38	78	50	25 29	14	56 40
19	14	51 56	46 12	12 18	49	36	29 34	38 21	34 25	79	50	40 20	13	57 9
20	15	38 8	46 4	12 58	50	37	7 55	37 52	35 14	80	50	53 59	12	57 36
21	16	24 12	45 57	13 39	51	37	45 47	37 24	36 3	81	51	6 22	11	58 3
22	17	10 9	45 49	14 20	52	38	23 11	36 52	36 52	82	51	17 31	9	58 27
23	17	55 58	45 40	15 2	53	39	0 3	36 22	37 44	83	51	27 24	8	58 49
24	18	41 38	45 32	15 42	54	39	36 25	35 47	38 32	84	51	36 0	7	59 7
25	19	27 10	45 22	16 23	55	40	12 12	35 13	39 22	85	51	43 18	6	59 23
26	20	12 32	45 12	17 4	56	40	47 25	34 37	40 11	86	51	49 18	4	59 35
27	20	57 44	45 1	17 46	57	41	22 2	33 59	41 2	87	51	53 20	3	59 45
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29	22	27 35	44 39	19 11	59	42	29 23	32 41	42 42	89	51	59 20	0	59 58
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ARCUS					ARCUS					ARCUS				
Defectetes					Defectetes					Defectetes				
Arcuales					Arcuales					Arcuales				
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4	3	11	37	2 30	34	26	31	31	22 20	64	45	52	26	46 23
5	3	59	29	3 7	35	27	15	47	23 4	65	46	22	12	47 12
6	4	47	12	3 45	36	27	59	49	23 48	66	46	51	7	48 2
7	5	35	7	4 22	37	28	43	35	24 33	67	47	19	11	48 50
8	6	22	53	5 0	38	29	27	6	25 17	68	47	46	20	49 40
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11	8	45	54	6 54	41	31	35	51	27 34	71	49	2	11	51 56
12	9	33	28	7 32	42	32	18	9	28 21	72	49	25	27	52 40
13	10	20	58	8 10	43	33	0	7	29 6	73	49	47	41	53 22
14	11	8	24	8 48	44	33	41	44	29 53	74	50	8	50	54 5
15	11	55	46	9 26	45	34	22	58	30 41	75	50	28	53	54 44
16	12	43	1	10 5	46	35	3	50	31 28	76	50	47	49	55 21
17	13	30	11	10 45	47	35	44	18	32 17	77	51	5	35	55 56
18	14	17	16	11 23	48	36	24	22	33 4	78	51	22	9	56 29
19	15	4	14	12 3	49	37	3	59	33 52	79	51	37	29	57 2
20	15	51	6	12 42	50	37	43	9	34 41	80	51	51	35	57 32
21	16	37	51	13 22	51	38	21	50	35 32	81	52	4	25	58 0
22	17	24	29	14 1	52	39	0	3	36 22	82	52	15	58	58 25
23	18	11	0	14 40	53	39	37	47	37 10	83	52	26	13	58 47
24	18	57	20	15 22	54	40	14	57	38 0	84	52	35	7	59 6
25	19	43	33	16 2	55	40	51	34	38 50	85	52	42	41	59 23
26	20	29	36	16 43	56	41	27	36	39 41	86	52	48	53	59 37
27	21	15	30	17 24	57	42	3	4	40 32	87	52	53	44	59 48
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29	22	46	46	18 47	59	43	12	5	42 12	89	52	59	18	59 59
30	23	32	8	19 29	60	43	45	36	43 3	90	53	0	0	60 0

L'ARCUS	ARCUS				Dif fere tia Late ralis	L'ARCUS	ARCUS				Dif fere tia Late ralis	L'ARCUS	ARCUS				Dif fere tia Late ralis			
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3	2	25	36	48	31	1 50	33	26	8	37	45	14	21 10	63	46	7	26	31	23	45 6
4	3	14	7	48	29	2 26	34	26	55	51	0	21 53	64	46	38	49	30	35	5	45 57
5	4	2	36	48	28	3 2	35	27	38	51	46	22 36	65	47	9	24	29	45	4	46 47
6	4	51	4	48	25	3 39	36	28	23	37	44	31	23 19	66	47	39	9	28	52	47 38
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21	16	51	13	47	17	13 3	51	38	57	22	39	3	34 58	81	53	2	25	11	58	57 53
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ARCUS					ARCUS					ARCUS				
Defécédtes					Defécédtes					Defécédtes				
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13	10	37	7	7 46	43	33	57	48	28 1	73	51	34	9	52 47
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ARCUS					ARCUS					ARCUS				
Arcuales					Arcuales					Arcuales				
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21	17	17	1	12 26	51	40	6	42	33 49	81	54	58	4	57 42
22	18	5	35	13 5	52	40	47	25	34 37	82	55	10	54	58 10
23	18	54	3	13 42	53	41	27	36	35 28	83	55	22	18	58 35
24	19	42	23	14 20	54	42	7	17	36 19	84	55	32	15	58 56
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ARCUS					ARCUS					ARCUS				
Defcédetes					Defcédetes					Defcédetes				
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8	6	42	10	4 31	38	31	5	13	23 13	68	51	2	30	47 5
9	7	32	19	5 6	39	31	51	23	23 56	69	51	31	59	47 57
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19	15	50	44	10 55	49	39	16	6	31 33	79	55	24	44	55 49
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21	17	29	27	12 7	51	40	41	59	33 10	81	55	55	48	57 1
22	18	18	40	12 42	52	41	22	2	33 50	82	56	9	4	57 32
23	19	7	45	13 20	53	42	3	4	34 51	83	56	20	53	58 3
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27	22	22	48	15 51	57	44	41	52	38 15	87	56	52	45	59 29
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ARCUS					ARCUS					ARCUS				
Defcédentes.					Defcédentes.					Defcédentes.				
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6	5	5	8	3 18	36	29	53	56	21 17	66	50	46	51	45 39
7	5	55	56	3 50	37	30	41	18	21 59	67	51	19	7	46 33
8	6	46	41	4 24	38	31	28	26	22 41	68	51	50	27	47 26
9	7	37	25	4 57	39	32	15	19	23 22	69	52	20	47	48 22
10	8	28	6	5 30	40	33	1	58	24 5	70	52	50	8	49 14
11	9	18	44	6 3	41	33	48	18	24 49	71	53	18	24	50 6
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13	10	59	51	7 12	43	35	20	8	26 17	73	54	11	35	51 48
14	11	50	21	7 44	44	36	5	36	27 1	74	54	36	24	52 36
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16	13	31	6	8 54	46	37	35	31	28 33	76	55	22	19	53 24
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18	15	11	33	10 2	48	39	3	59	30 7	78	56	2	58	
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21	17	41	34	11 48	51	41	13	41	32 31	81	56	53	18	57 24
22	18	31	22	12 23	52	41	56	1	33 22	82	57	7	7	57 56
23	19	21	5	12 59	53	42	37	55	34 10	83	57	19	22	58 26
24	20	10	40	13 36	54	43	19	16	35 1	84	57	30	4	58 50
25	21	0	7	14 12	55	44	0	6	35 52	85	57	39	10	
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27	22	38	39	15 26	57	45	20	7	37 37	87	57	52	29	59 41
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29	24	16	35	16 42	59	46	37	43	39 22	89	57	59	10	59 58
30	25	5	20	17 20	60	47	15	32	40 15	90	58	0	0	60 0

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ralis

Descēdētes

Arcuales

Late
ralis

g	g	m	fa	m	fa	g	g	m	fa	m	fa	g	g	m	fa	m	fa
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ARABIC					ARABIC					ARABIC				
Defécédtes.					Defécédtes.					Defécédtes.				
Arcales					Arcales					Arcales				
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7	6	3	30	3 37	37	31	24	43	20 52	67	52	51	41	45 28
8	6	55	21	4 2	38	32	13	15	21 32	68	53	24	50	46 24
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13	11	14	2	6 46	43	36	12	6	25 2	73	55	54	46	50 58
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17	14	40	1	8 56	47	39	17	57	28 2	77	57	32	47	54 20
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19	16	22	36	10 2	49	40	48	48	29 35	79	58	13	27	55 48
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22	18	55	48	11 44	52	43	2	4	31 59	82	59	2	52	57 41
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30	25	39	32	16 25	60	48	35	25	38 56	90	60	0	0	60 0

Defcēdētes	ARCUS				Diff ferē tia	Late ralls	Defcēdētes	ARCUS				Diff ferē tia	Late ralls	Defcēdētes	ARCUS				Diff ferē tia	Late ralls
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2	1	44	57			32	27	36	42			62	50	33	21					
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3	2	37	25			33	28	26	50			63	51	11	45					
		52	27	1 30				49	59	17 46				37	37	41 0				
4	3	29	52			34	29	16	49			64	51	49	22					
		52	26	2 0				49	47	18 23				36	48	41 57				
5	4	22	18			35	30	6	36			65	52	26	10					
		52	26	2 31				49	36	19 1				35	57	42 55				
6	5	14	44			36	30	56	12			66	53	2	7					
		52	23	3 0				49	23	19 39				35	2	43 53				
7	6	7	7			37	31	45	35			67	53	37	9					
		52	23	3 31				49	12	20 18				34	5	44 49				
8	6	59	30			38	32	34	47			68	54	11	14					
		52	20	4 1				48	58	20 57				33	5	45 47				
9	7	51	50			39	33	23	45			69	54	44	19					
		52	18	4 31				48	43	21 37				32	2	46 45				
10	8	44	8			40	34	12	28			70	55	16	21					
		52	16	5 2				48	28	22 18				30	58	47 43				
11	9	36	24			41	35	0	56			71	55	47	19					
		52	13	5 32				48	14	22 59				29	49	48 39				
12	10	28	37			42	35	49	10			72	56	17	8					
		52	11	6 4				47	58	23 40				28	36	49 35				
13	11	20	48			43	36	37	8			73	56	45	44					
		52	9	6 34				47	41	24 24				27	21	50 31				
14	12	12	57			44	37	24	49			74	57	13	5					
		52	3	7 4				47	22	25 6				26	4	51 27				
15	13	5	0			45	38	12	11			75	57	39	9					
		52	1	7 37				47	3	25 50				24	41	52 19				
16	13	57	1			46	38	59	14			76	58	3	50					
		51	56	8 8				46	45	26 34				23	17	53 11				
17	14	48	57			47	39	45	59			77	58	27	7					
		51	53	8 40				46	23	27 19				21	50	54 1				
18	15	40	50			48	40	32	22			78	58	48	57					
		51	48	9 11				46	1	28 5				20	18	54 49				
19	16	32	38			49	41	18	23			79	59	9	15					
		51	43	9 43				45	38	28 52				18	43	55 23				
20	17	24	21			50	42	4	1			80	59	27	58					
		51	37	10 16				45	14	29 40				17	8	56 19				
21	18	15	58			51	42	49	15			81	59	45	6					
		51	34	10 50				44	48	30 28				15	27	56 57				
22	19	7	32			52	43	34	3			82	60	0	33					
		51	28	11 22				44	22	31 17				13	47	57 34				
23	19	59	0			53	44	18	25			83	60	14	20					
		51	20	11 54				43	53	32 6				11	59	58 6				
24	20	50	20			54	45	2	18			84	60	26	19					
		51	14	12 28				43	25	32 57				10	14	58 36				
25	21	41	34			55	45	45	43			85	60	36	33					
		51	8	13 2				42	53	33 47				8	25	59 0				
26	22	32	42			56	46	28	36			86	60	44	58					
		51	0	13 36				42	19	34 38				6	34	59 21				
27	23	23	42			57	47	10	55			87	60	51	32					
		50	53	14 10				41	45	35 32				4	42	59 37				
28	24	14	35			58	47	52	40			88	60	56	14					
		50	45	14 45				41	10	36 26				2	49	59 50				
29	25	5	20			59	48	33	50			89	60	59	3					
		50	37	15 21				40	31	37 19				0	57	59 58				
30	25	55	57			60	49	14	21			90	61	0	0					
		50	27	15 56				39	51	38 13				0	0	60 0				

Dif ferē tia Late ralis.	ARCUS				Dif ferē tia Late ralis.	ARCUS				Dif ferē tia Late ralis.	ARCUS				Dif ferē tia Late ralis.
	Arcuales					Arcuales					Arcuales				
Defcēdētes.	g	m	fa	m fa	Defcēdētes.	g	m	fa	m fa	Defcēdētes.	g	m	fa	m fa	Defcēdētes.
1	0	52	59	0 29	31	27	2	56	16 2	61	50	33	21	38 24	
2	1	45	57	0 58	32	27	53	50	16 39	62	51	13	25	39 20	
3	2	38	55	1 27	33	28	44	36	17 15	63	51	52	45	40 18	
4	3	31	52	1 56	34	29	35	12	17 50	64	52	31	19	41 15	
5	4	24	49	2 25	35	30	25	37	18 27	65	53	9	5	42 13	
6	5	17	44	2 54	36	31	15	31	19 4	66	53	46	0	43 10	
7	6	10	38	3 24	37	32	5	53	19 43	67	54	21	58	44 10	
8	7	3	31	3 53	38	32	55	44	20 21	68	54	57	1	45 10	
9	7	56	21	4 23	39	33	45	22	21 0	69	55	31	4	46 9	
10	8	49	10	4 52	40	34	34	46	21 40	70	56	4	4	47 7	
11	9	41	52	5 22	41	35	23	55	22 22	71	56	35	58	48 6	
12	10	34	41	5 51	42	36	12	50	23 3	72	57	6	43	49 4	
13	11	27	22	6 21	43	37	1	32	23 43	73	57	36	15	50 2	
14	12	20	1	6 51	44	37	49	55	24 26	74	58	4	32	50 57	
15	13	12	37	7 22	45	38	38	1	25 9	75	58	31	28	51 53	
16	14	5	9	7 52	46	39	25	48	25 55	76	58	57	1	52 48	
17	14	57	37	8 23	47	40	13	18	26 38	77	59	21	8	53 40	
18	15	50	1	8 54	48	41	0	27	27 22	78	59	43	46	54 30	
19	16	42	21	9 25	49	41	47	15	28 8	79	60	4	48	55 19	
20	17	33	37	9 56	50	42	33	41	28 55	80	60	24	17	56 2	
21	18	26	48	10 28	51	43	19	43	29 42	81	60	42	3	56 45	
22	17	18	54	11 0	52	44	5	20	30 31	82	60	58	7	57 23	
23	20	10	54	11 32	53	44	50	31	31 22	83	61	12	26	57 58	
24	21	2	48	12 5	54	45	35	15	32 11	84	61	24	55	58 30	
25	21	54	36	12 38	55	46	19	30	33 2	85	61	35	33	58 59	
26	22	46	18	13 11	56	47	3	14	33 54	86	61	44	19	59 20	
27	23	37	52	13 45	57	47	46	27	34 47	87	61	51	9	59 39	
28	24	29	20	14 19	58	48	29	6	35 39	88	61	56	4	59 51	
29	25	20	41	14 53	59	49	11	9	36 33	89	61	59	1	59 58	
30	26	11	53	15 27	60	49	52	34	37 29	90	62	0	0	60 0	

ARITHMETIC					ARITHMETIC					ARITHMETIC				
Defectives					Defectives					Defectives				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	53	28	0 28	31	27	18	58	15 33	61	51	11	45	0 37 37
2	1	46	55	0 56	32	28	10	29	16 7	62	51	52	45	38 34
3	2	40	22	1 24	33	29	1	51	16 42	63	52	33	3	39 31
4	3	33	48	1 53	34	29	53	2	17 18	64	53	12	34	40 30
5	4	27	14	2 20	35	30	44	4	17 53	65	53	51	18	41 28
6	5	20	38	2 49	36	31	34	55	18 31	66	54	29	10	42 27
7	6	14	2	3 17	37	32	25	36	19 7	67	55	6	8	43 27
8	7	7	24	3 45	38	33	16	5	19 46	68	55	42	11	44 28
9	8	0	44	4 13	39	34	6	22	20 24	69	56	17	13	45 28
10	8	54	2	4 42	40	34	56	26	21 2	70	56	51	11	46 29
11	9	47	18	5 11	41	35	46	17	21 42	71	57	24	4	47 30
12	10	40	32	5 40	42	36	35	53	22 23	72	57	55	47	48 30
13	11	33	43	6 10	43	37	25	15	23 3	73	58	26	17	49 29
14	12	26	52	6 39	44	38	14	21	23 45	74	58	55	29	50 27
15	13	19	59	7 7	45	39	3	10	24 28	75	59	23	21	51 25
16	14	13	1	7 37	46	39	51	43	25 9	76	59	49	49	52 23
17	15	6	0	8 7	47	40	39	56	25 53	77	60	14	48	53 18
18	15	58	55	8 37	48	41	27	49	26 39	78	60	38	16	54 9
19	16	51	46	9 7	49	42	15	23	27 25	79	61	0	7	55 0
20	17	44	33	9 37	50	43	2	36	28 10	80	61	20	19	55 48
21	18	37	16	10 7	51	43	49	25	28 58	81	61	38	48	56 34
22	19	29	54	10 39	52	44	35	51	29 45	82	61	55	30	57 15
23	20	22	26	11 11	53	45	21	53	30 33	83	62	10	24	57 52
24	21	14	53	11 41	54	46	7	26	31 23	84	62	23	25	58 25
25	22	7	14	12 13	55	46	52	32	32 14	85	62	34	32	58 52
26	22	59	29	12 45	56	47	37	8	33 7	86	62	43	39	59 16
27	23	51	37	13 17	57	48	21	14	33 59	87	62	50	48	59 34
28	24	43	39	13 51	58	49	4	45	34 52	88	62	55	55	59 47
29	25	35	34	14 24	59	49	47	42	35 46	89	62	58	59	59 56
30	26	27	20	14 58	60	50	30	3	36 41	90	63	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédètes.					Defcédètes.					Defcédètes.				
g	m	fa	Diffé- rentia	Late- ralis	g	m	fa	Diffé- rentia	Late- ralis	g	m	fa	Diffé- rentia	Late- ralis
1	0	53 56		0 27	31	27 34 31	15 1		61	51	49 22		36 48	
2	1	47 51		0 54	32	28 26 36	15 35		62	52	41 19		37 46	
3	2	41 46		1 21	33	29 18 33	16 9		63	53	12 34		38 44	
4	3	35 41		1 48	34	30 10 20	16 43		64	53	53 4		39 42	
5	4	29 34		2 16	35	31 1 57	17 20		65	54	32 46		40 42	
6	5	23 27		2 43	36	31 53 26	17 54		66	55	11 37		41 44	
7	6	17 19		3 10	37	32 44 43	18 32		67	55	49 35		42 45	
8	7	11 9		3 37	38	33 35 51	19 7		68	56	26 39		43 45	
9	8	4 57		4 6	39	34 26 46	19 45		69	57	2 41		44 46	
10	8	58 44		4 33	40	35 17 28	20 23		70	57	37 40		45 49	
11	9	52 29		5 1	41	36 7 59	21 2		71	58	11 34		46 52	
12	10	46 12		5 28	42	36 58 16	21 41		72	58	44 17		47 53	
13	11	39 53		5 57	43	37 48 18	22 21		73	59	15 46		48 54	
14	12	33 31		6 25	44	38 49 32	23 1		74	59	45 56		49 57	
15	13	27 6		6 53	45	39 27 38	23 43		75	60	14 46		50 58	
16	14	20 38		7 21	46	40 16 52	24 26		76	60	42 12		51 54	
17	15	14 7		7 49	47	41 5 49	25 9		77	61	8 6		52 51	
18	16	7 32		8 18	48	41 54 28	25 53		78	61	34 25		53 47	
19	17	0 53		8 48	49	42 42 48	26 37		79	61	55 7		54 42	
20	17	54 10		9 18	50	43 30 46	27 23		80	62	16 7		55 32	
21	18	47 23		9 47	51	44 18 23	28 9		81	62	35 22		56 18	
22	19	40 33		10 16	52	45 5 36	28 58		82	62	52 45		57 2	
23	20	33 37		10 46	53	45 52 26	29 46		83	63	8 16		57 40	
24	21	26 34		11 18	54	46 38 49	30 35		84	63	21 50		58 16	
25	22	19 27		11 49	55	47 24 46	31 25		85	63	33 24		58 47	
26	23	12 14		12 20	56	48 10 15	32 16		86	63	42 55		59 14	
27	24	4 54		12 52	57	48 55 13	33 8		87	63	50 22		59 35	
28	24	57 30		13 23	58	49 39 27	34 2		88	63	55 42		59 50	
29	25	49 58		13 55	59	50 23 28	34 58		89	63	58 55		59 59	
30	26	42 18		14 28	60	51 6 44	35 52		90	64	0 0		60 0	

ARCUS					ARCUS					ARCUS				
Descedetes					Descedetes					Descedetes				
Arcuales					Arcuales					Arcuales				
Descedetes	g	m	fa	Diff. fer. tia. Late. ralis.	Descedetes	g	m	fa	Diff. fer. tia. Late. ralis.	Descedetes	g	m	fa	Diff. fer. tia. Late. ralis.
1	0	54	23	0 26	31	27	49	32	14 31	61	52	26	10	
2	1	48	45	0 52	32	28	52	39	15 3	62	53	9	5	35 57
3	2	43	7	1 12	33	29	54	31	15 36	63	53	42	13	36 55
4	3	37	29	1 44	34	30	52	14	16 10	64	54	51	18	37 52
5	4	31	50	2 10	35	31	51	17	16 43	65	55	32	46	38 51
6	5	26	10	2 37	36	32	51	55	17 18	66	55	40	2	
7	6	20	29	3 3	37	33	51	43	17 53	67	56	38	20	
8	7	14	46	3 30	38	33	54	58	18 30	68	57	37	4	41 56
9	8	9	3	3 55	39	34	51	20	19 5	69	57	47	27	43 0
10	9	3	13	4 22	40	35	51	10	19 43	70	58	46	2	44 3
11	9	57	30	4 49	41	36	50	56	20 21	71	58	44	26	
12	10	51	40	5 16	42	37	50	42	20 59	72	59	43	44	46 9
13	11	45	50	5 42	43	38	50	28	21 38	73	59	42	10	47 15
14	12	39	56	6 9	44	39	50	14	22 18	74	60	41	13	48 18
15	13	33	59	6 37	45	39	51	21	22 59	75	61	40	5	
16	14	27	52	7 5	46	40	49	57	23 40	76	61	39	28	50 23
17	15	21	56	7 33	47	41	48	40	24 23	77	62	38	22	51 26
18	16	15	50	8 1	48	42	47	23	25 6	78	62	37	15	52 27
19	17	9	41	8 29	49	43	46	4	25 50	79	62	36	12	53 25
20	18	3	28	8 57	50	43	45	25	26 35	80	63	35	9	54 19
21	18	57	10	9 27	51	44	44	2	27 21	81	63	34	1	55 12
22	19	50	49	9 56	52	45	43	2	28 8	82	64	33	40	56 1
23	20	44	23	10 24	53	46	42	12	28 55	83	64	32	18	56 51
24	21	37	52	10 53	54	47	41	12	29 45	84	64	31	16	57 34
25	22	31	16	11 23	55	47	40	11	30 36	85	64	30	14	58 10
26	23	24	34	11 53	56	48	39	10	31 26	86	64	29	12	58 43
27	24	17	46	12 25	57	49	38	9	32 17	87	64	28	9	59 9
28	25	10	53	12 55	58	50	37	8	33 12	88	64	27	7	59 30
29	26	3	53	13 27	59	50	36	7	34 4	89	64	26	5	59 46
30	26	56	46	13 58	60	51	35	6	35 0	90	65	25	4	59 55

Déclétées.	ARCUS				Diff fere tia Late ralis.	Déclétées.	ARCUS				Diff fere tia Late ralis.	Déclétées.	ARCUS				Diff fere tia Late ralis.
	Areales						Areales						Areales				
	g	m	fa	m fa			g	m	fa	m fa			g	m	fa	m fa	
1	0	54	49			31	28	4	3			61	53	2	7		
		54	48	0 25				53	11	14 2				43	53	35 2	
2	1	49	37			32	28	57	14			62	53	46	0		
		54	49	1 50				53	4	14 31				43	10	35 58	
3	2	44	26			33	29	50	18			63	54	29	10		
		54	47	1 15				52	55	15 2				42	27	36 58	
4	3	39	13			34	30	43	13			64	55	11	37		
		54	47	2 41				52	47	15 35				41	44	37 58	
5	4	34	0			35	31	36	0			65	55	53	21		
		54	47	2 6				52	38	16 9				40	53	38 59	
6	5	28	47			36	32	28	38			66	56	34	14		
		54	45	2 30				52	30	16 42				40	2	40 2	
7	6	23	32			37	33	21	8			67	57	14	16		
		54	44	2 56				52	20	17 16				39	7	41 5	
8	7	18	16			38	34	13	28			68	57	53	23		
		54	42	3 21				52	8	17 50				38	7	42 8	
9	8	12	58			39	35	5	36			69	58	31	30		
		54	41	3 47				51	58	18 26				37	5	43 13	
10	9	7	39			40	35	57	34			70	59	8	35		
		54	40	4 13				51	48	19 2				36	0	44 19	
11	10	2	19			41	36	49	22			71	59	44	35		
		54	37	4 38				51	34	19 38				34	50	45 25	
12	10	56	56			42	37	40	56			72	60	19	25		
		54	36	5 5				51	21	20 16				33	33	46 30	
13	11	51	32			43	38	32	17			73	60	52	58		
		54	33	5 30				51	8	20 55				32	17	47 37	
14	12	46	5			44	39	23	25			74	61	25	15		
		54	31	5 57				50	55	21 35				30	52	48 42	
15	13	40	36			45	40	14	20			75	61	56	7		
		54	28	6 23				50	38	22 13				29	25	49 48	
16	14	35	4			46	41	4	58			76	62	25	32		
		54	25	6 49				50	23	22 54				27	52	50 52	
17	15	29	29			47	41	55	21			77	62	53	24		
		54	22	7 16				50	6	23 35				26	13	51 54	
18	16	23	51			48	42	45	27			78	63	19	37		
		54	19	7 43				49	43	24 18				24	31	52 57	
19	17	18	10			49	43	35	15			79	63	44	8		
		54	15	8 10				49	29	25 1				22	43	53 56	
20	18	12	25			50	44	24	44			80	64	6	51		
		54	12	8 37				49	9	25 45				20	50	54 54	
21	19	6	37			51	45	17	53			81	64	27	41		
		54	8	9 5				48	49	26 30				18	57	55 48	
22	20	0	45			52	46	2	42			82	64	46	38		
		54	2	9 32				48	25	27 16				16	52	56 34	
23	20	54	47			53	46	51	7			83	65	3	30		
		51	58	10 1				48	2	28 4				14	46	57 19	
24	21	48	45			54	47	39	9			84	65	18	16		
		51	54	10 30				47	38	28 52				12	48	58 1	
25	22	42	39			55	48	26	47			85	65	30	54		
		51	48	10 58				47	10	29 41				10	24	58 35	
26	23	36	27			56	49	13	57			86	65	41	18		
		51	44	11 27				46	41	30 31				8	9	59 5	
27	24	30	11			57	50	0	38			87	65	49	27		
		51	38	11 57				46	13	31 24				5	51	59 30	
28	25	23	49			58	50	46	51			88	65	55	18		
		51	31	12 26				45	32	32 16				3	31	59 47	
29	26	17	20			59	51	32	30			89	65	58	49		
		51	24	12 57				45	6	33 10				1	11	59 57	
30	27	10	44			60	52	17	36			90	66	0	0		
		51	19	13 28				44	31	34 5				0	0	60 0	

TABLES

ARCUS						Dif ferē tia Late ralis.	ARCUS						Dif ferē tia Late ralis.	ARCUS						Dif ferē tia Late ralis.
Defectus		Arcus					Defectus		Arcus					Defectus		Arcus				
g	g	m	fa	m	fa	g	g	m	fa	m	fa	g	g	m	fa	m	fa			
1	0	55	14			31	28	18	5			61	53	37	9					
		55	13	0 24				53	40	13 27				44	49	34	5			
2	1	50	27			32	29	11	45			62	54	21	58					
		55	14	0 42				53	35	13 57				44	10	35	3			
3	2	45	41			33	30	5	20			63	55	6	8					
		55	13	1 12				53	28	14 29				43	27	36	3			
4	3	40	54			34	30	58	48			64	55	43	35					
		55	12	1 36				53	21	15 0				42	45	37	4			
5	4	36	6			35	31	52	9			65	56	32	20					
		55	11	2 0				53	11	15 31				41	56	38	3			
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11	10	6	57			41	37	9	0			71	60	30	0					
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		54	49	6 58				50	49	22 47				27	16	51	22			
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		54	42	7 50				50	13	24 10				23	41	53	30			
20	18	21	2			50	44	50	29			80	65	1	45					
		54	40	8 17				49	54	24 51				21	44	54	28			
21	19	15	42			51	45	40	23			81	65	23	29					
		54	35	8 44				49	35	25 39				19	43	55	26			
22	20	10	17			52	46	29	58			82	65	43	12					
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		54	27	9 37				48	50	27 9				15	28	57	8			
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		53	55	12 27				46	1	32 13				1	14	59	56			
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		53	53	12 57				45	28	33 9				0	0	60	0			

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13	12	2 19	5 4		43	39	13 22	19 24		73	62	27 29	46 4	
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17	15	43 43	6 41		47	42	41 43	21 57		77	64	36 40	50 47	
18	16	38 58	7 6		48	43	33 13	22 37		78	65	5 0	51 54	
19	17	34 10	7 30		49	44	24 26	23 18		79	65	31 34	52 59	
20	18	29 19	7 56		50	45	15 22	24 2		80	65	56 13	54 5	
21	19	24 25	8 22		51	46	6 2	24 44		81	66	18 55	55 5	
22	20	19 27	8 47		52	46	56 21	25 29		82	66	39 30	56 2	
23	21	14 25	9 13		53	47	46 20	26 16		83	66	57 57	56 54	
24	22	9 19	9 40		54	48	36 0	27 0		84	67	14 9	57 39	
25	23	4 10	10 6		55	49	25 14	27 50		85	67	28 0	58 20	
26	23	58 55	10 33		56	50	14 4	28 41		86	67	39 26	58 55	
27	24	53 37	11 1		57	51	2 30	29 29		87	67	48 23	59 24	
28	25	48 13	11 29		58	51	50 27	30 20		88	67	54 49	59 46	
29	26	42 44	11 56		59	52	37 53	31 16		89	67	58 42	59 58	
30	27	37 9	12 25		60	53	24 50	32 10		90	68	0 0	60 0	

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
Arcuales					Arcuales					Arcuales				
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4	3	44	2	1 28	34	31	28	12	13 47	64	57	2	41	34 59
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6	5	36	1	2 12	36	33	16	52	14 48	66	58	31	30	37 5
7	6	31	58	2 35	37	34	11	0	15 19	67	59	14	43	38 11
8	7	27	56	2 57	38	35	5	1	15 49	68	59	57	5	39 18
9	8	23	52	3 18	39	35	58	52	16 22	69	60	38	31	40 27
10	9	19	46	3 42	40	36	52	36	16 55	70	61	18	58	41 36
11	10	15	40	4 4	41	37	46	10	17 28	71	61	58	19	42 47
12	11	11	32	4 26	42	38	39	33	18 2	72	62	36	34	43 57
13	12	7	23	4 50	43	39	32	46	18 38	73	63	13	33	45 10
14	13	3	11	5 13	44	40	25	49	19 13	74	63	49	13	46 25
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16	14	54	42	6 0	46	42	11	15	20 28	76	64	56	17	48 52
17	15	50	24	6 23	47	43	3	40	21 6	77	65	27	27	50 4
18	16	46	4	6 47	48	43	55	50	21 45	78	65	56	54	51 18
19	17	41	40	7 11	49	44	47	44	22 26	79	66	24	33	52 28
20	18	37	15	7 34	50	45	39	24	23 7	80	66	50	18	53 34
21	19	32	47	7 59	51	46	30	46	23 49	81	67	14	0	54 38
22	20	28	14	8 24	52	47	21	50	24 32	82	67	35	32	55 41
23	21	23	38	8 50	53	48	12	36	25 17	83	67	54	51	56 36
24	22	18	59	9 15	54	49	3	0	26 3	84	68	11	48	57 29
25	23	14	16	9 40	55	49	53	4	26 50	85	68	26	20	58 14
26	24	9	28	10 6	56	50	42	45	27 38	86	68	38	21	58 51
27	25	4	38	10 32	57	51	31	59	28 28	87	68	47	47	59 20
28	25	59	42	10 58	58	52	20	47	29 21	88	68	54	35	59 41
29	26	54	40	11 26	59	53	9	9	30 13	89	68	58	40	59 54
30	27	49	34	11 53	60	53	57	0	31 7	90	69	0	0	60 0

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Defectetes.	Arcules	Defectetes.	Arcules	Defectetes.	Arcules	Defectetes.	Arcules
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6	5	36	33	66	59	8	35
7	6	37	34	67	59	52	54
8	7	38	35	68	60	36	23
9	8	39	36	69	61	18	58
10	9	40	37	70	62	0	34
11	10	41	38	71	62	41	6
12	11	42	38	72	63	20	31
13	12	43	39	73	63	58	43
14	13	44	40	74	64	35	38
15	14	45	41	75	65	11	9
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21	19	51	46	81	68	8	38
22	20	52	47	82	68	31	13
23	21	53	48	83	68	51	27
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29	27	59	53	89	69	58	34
30	28	60	54	90	70	0	0

ARCAUS					ARCAUS					ARCAUS				
Diferencia					Diferencia					Diferencia				
Arcales					Arcales					Arcales				
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30	28	12	48	10 49	60	54	48	9	28 54	90	71	0	0	60 0

ARCUS					ARCUS					ARCUS				
Latitudes					Latitudes					Latitudes				
Declinations					Declinations					Declinations				
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11	10	27	19	3 30	41	38	36	18	15 10	71	64	3	30	39 28
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13	12	21	13	4 9	43	40	26	15	16 12	73	65	26	41	42 4
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18	17	5	28	5 50	48	44	58	22	19 1	78	68	28	38	49 2
19	18	2	13	6 11	49	45	52	15	19 37	79	69	0	1	50 24
20	18	58	56	6 33	50	46	45	54	20 15	80	69	29	22	51 45
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22	20	52	17	7 14	52	48	32	32	21 33	82	70	21	22	54 23
23	21	48	51	7 35	53	49	25	27	22 14	83	70	43	45	55 33
24	22	45	26	7 57	54	50	18	7	22 56	84	71	3	29	56 37
25	23	41	56	8 21	55	51	10	29	23 40	85	71	20	27	57 36
26	24	38	24	8 43	56	52	2	31	24 25	86	71	34	32	58 26
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29	27	27	25	10 52	59	54	36	31	26 51	89	71	58	23	59 53
30	28	24	37	10 16	60	55	27	3	27 43	90	72	0	0	60 0

ARCS				Diffé- ren- tia	ARCS				Diffé- ren- tia	ARCS				Diffé- ren- tia
Latitudes		Arcs		Latitudes	Arcs		Latitudes	Arcs		Latitudes	Arcs		Latitudes	
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		56	55	7 12			53	22	21 9			20	48	
24	22	53	23		54	50	41	3		84	72	0	6	
		56	54	7 32			53	6	21 52			17	57	
25	23	50	17		55	51	34	9		85	72	18	3	
		56	50	7 52			52	47	22 33			14	55	
26	24	47	7		56	52	26	56		86	72	32	58	
		56	47	8 14			52	29	23 18			11	44	
27	25	43	54		57	53	19	25		87	72	44	42	
		56	43	8 35			52	9	24 4			8	28	
28	26	40	37		58	54	11	34		88	72	53	10	
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29	27	37	17		59	55	3	22		89	72	58	16	
		56	36	9 19			51	24	25 38			1	44	
30	28	33	53		60	55	54	46		90	73	0	0	
		56	33	9 42			50	58	26 27			0	0	

ARCUS					ARCUS					ARCUS				
Dif ferētia					Dif ferētia					Dif ferētia				
Late ralis					Late ralis					Late ralis				
Defecēdēs.					Defecēdēs.					Defecēdēs.				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	0	57	41	0 16	31	29	40	32	9 30	61	57	13	5	
2	1	55	21	0 34	32	30	37	24	9 53	62	58	4	32	26 4
3	2	53	1	0 51	33	31	34	12	10 15	63	58	55	29	26 56
4	3	50	41	1 8	34	32	30	56	10 39	64	59	45	5	27 52
5	4	48	21	1 24	35	33	27	37	11 2	65	60	35	5	28 50
6	5	46	0	1 41	36	34	24	12	11 26	66	61	25	15	29 51
7	6	43	39	1 58	37	35	20	42	11 51	67	62	13	57	30 52
8	7	41	17	2 15	38	36	17	9	12 16	68	63	1	59	31 58
9	8	38	55	2 32	39	37	13	29	12 41	69	63	49	13	31 5
10	9	36	32	2 49	40	38	9	43	13 7	70	64	35	38	34 6
11	10	34	8	3 7	41	39	5	51	13 35	71	65	21	9	35 31
12	11	31	42	3 25	42	40	1	54	14 2	72	66	5	39	36 46
13	12	29	16	3 44	43	40	55	55	14 30	73	66	43	26	38 5
14	13	26	50	4 0	44	41	55	47	15 0	74	67	49	5	39 20
15	14	24	22	4 17	45	42	55	41	15 30	75	68	31	18	40 5
16	15	21	53	4 35	46	43	55	32	16 0	76	68	40	54	42 23
17	16	19	21	4 54	47	44	55	23	16 31	77	69	39	28	43 52
18	17	16	49	5 11	48	45	55	14	17 4	78	69	37	7	45 24
19	18	14	15	5 29	49	46	55	4	17 37	79	70	34	16	46 58
20	19	11	40	5 48	50	47	54	51	18 12	80	71	33	10	48 31
21	20	9	1	6 8	51	48	53	42	18 49	81	71	32	1	50 4
22	21	6	22	6 26	52	49	52	33	19 24	82	72	31	27	51 37
23	22	3	40	6 46	53	50	51	24	20 3	83	72	30	24	53 8
24	23	0	55	7 6	54	51	50	15	20 42	84	72	29	19	54 35
25	23	58	9	7 25	55	51	47	6	21 23	85	73	28	16	57 0
26	24	55	21	7 45	56	52	46	5	22 6	86	73	27	13	58 2
27	25	52	29	8 6	57	53	45	4	22 49	87	73	26	12	58 50
28	26	49	34	8 27	58	54	44	3	23 36	88	73	25	11	59 28
29	27	46	36	8 48	59	55	43	2	24 24	89	73	24	10	59 53
30	28	43	35	9 9	60	56	42	1	25 13	90	74	23	9	60 0

Defécédées	ARCUS			Diff fere tia	Late ralia	Defécédées	ARCUS			Diff fere tia	Late ralia	Defécédées	ARCUS			Diff fere tia	Late ralia
	g	m	fa				g	m	fa				g	m	fa		
1	0	57	57			31	29	50	2			61	57	39	9		
		57	58	0 16				57	15	8 56				52	19	24 41	
2	1	55	57			32	30	47	17			62	58	31	28		
		57	57	0 31				57	10	9 16				51	53	25 33	
3	2	53	52			33	31	44	27			63	59	23	21		
		57	57	0 47				57	8	9 38				51	25	26 28	
4	3	51	49			34	32	41	35			64	60	14	46		
		57	56	1 3				57	4	10 0				50	58	27 26	
5	4	49	45			35	33	38	39			65	61	5	44		
		57	56	1 19				56	59	10 21				50	23	28 22	
6	5	47	41			36	34	35	38			66	61	56	7		
		57	56	1 35				56	55	10 44				49	48	29 25	
7	6	45	37			37	35	32	33			67	62	45	55		
		57	55	1 51				56	52	11 7				49	9	30 29	
8	7	43	32			38	36	29	25			68	63	35	4		
		57	55	2 7				56	45	11 31				48	25	31 35	
9	8	41	27			39	37	26	10			69	64	23	29		
		57	54	2 22				56	40	11 55				47	40	32 48	
10	9	39	21			40	38	22	50			70	65	11	9		
		57	54	2 39				56	36	12 21				46	46	34 0	
11	10	37	15			41	39	19	26			71	65	57	55		
		57	52	2 55				56	30	12 46				45	42	35 17	
12	11	35	7			42	40	15	56			72	66	43	44		
		57	53	3 11				56	23	13 12				44	50	36 40	
13	12	33	0			43	41	12	19			73	67	28	34		
		57	50	3 27				56	17	13 38				43	38	38 0	
14	13	30	50			44	42	8	36			74	68	12	12		
		57	49	3 44				56	11	14 5				42	23	39 28	
15	14	28	39			45	43	4	47			75	68	54	35		
		57	49	4 1				56	2	14 34				40	57	40 57	
16	15	26	28			46	44	0	49			76	69	35	32		
		57	47	4 17				55	54	15 3				39	25	42 30	
17	16	24	15			47	44	56	43			77	70	14	57		
		57	45	4 34				55	47	15 34				37	39	44 5	
18	17	22	0			48	45	52	30			78	70	52	36		
		57	44	4 52				55	37	16 5				35	51	45 44	
19	18	19	44			49	46	48	7			79	71	28	27		
		57	44	5 9				55	28	16 36				33	43	47 22	
20	19	17	28			50	47	43	35			80	72	2	10		
		57	41	5 27				55	19	17 9				31	28	49 2	
21	20	15	9			51	48	38	54			81	72	33	38		
		57	39	5 45				55	5	17 42				29	0	50 42	
22	21	12	48			52	49	33	59			82	73	2	38		
		57	38	6 3				54	54	18 19				26	16	52 17	
23	22	10	26			53	50	28	53			83	73	28	54		
		57	35	6 20				54	44	18 56				23	19	53 49	
24	23	8	1			54	51	23	37			84	73	52	13		
		57	33	6 39				54	28	19 33				20	11	55 19	
25	24	5	34			55	52	18	5			85	74	12	24		
		57	32	6 57				54	15	20 12				16	51	56 39	
26	25	3	6			56	53	12	20			86	74	29	15		
		57	29	7 16				53	58	20 53				13	18	57 48	
27	26	0	35			57	54	6	18			87	74	42	33		
		57	26	7 35				53	42	21 35				9	39	58 46	
28	26	58	1			58	55	0	0			88	74	52	12		
		57	23	7 55				53	24	22 19				5	51	59 27	
29	27	55	24			59	55	53	24			89	74	58	3		
		57	20	8 14				53	2	23 4				1	57	59 52	
30	28	52	44			60	56	46	26			90	75	0	0		
		57	18	8 36				52	43	23 52				0	0	60 0	

ARCUS					Dif fere tia Zate ralis	ARCUS					Dif fere tia Zate ralis	ARCUS					Dif fere tia Zate ralis		
Defcédentes.						Arcuales						Defcédentes.						Arcuales	
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa					
1	0	58	13	0 15	31	29	58	58	8 20	61	58	3	50	23 17					
2	1	56	26	0 30	32	30	56	33	8 40	62	58	57	1	24 7					
3	2	54	39	0 44	33	31	54	30	9 0	63	59	49	49	24 59					
4	3	52	52	0 58	34	32	51	35	9 20	64	60	42	12	25 54					
5	4	51	4	1 13	35	33	49	0	9 41	65	61	34	6	26 51					
6	5	49	16	1 28	36	34	46	22	10 2	66	62	25	32	27 52					
7	6	47	28	1 43	37	35	43	40	10 25	67	63	16	24	28 54					
8	7	45	39	1 58	38	36	40	56	10 46	68	64	6	39	30 1					
9	8	43	49	2 14	39	37	38	5	11 9	69	64	56	17	31 10					
10	9	42	0	2 28	40	38	35	11	11 31	70	65	48	3	32 22					
11	10	40	10	2 42	41	39	32	12	11 56	71	66	33	12	33 42					
12	11	38	18	2 59	42	40	29	8	12 21	72	67	26	24	34 59					
13	12	36	27	3 14	43	41	25	27	12 47	73	68	6	34	36 23					
14	13	34	34	3 29	44	42	22	41	13 14	74	68	51	40	37 53					
15	14	32	40	3 45	45	43	19	21	13 38	75	69	35	32	39 25					
16	15	30	45	4 1	46	44	15	52	14 6	76	70	18	2	41 0					
17	16	28	49	4 17	47	45	12	17	14 35	77	70	39	2	42 40					
18	17	26	52	4 32	48	46	8	35	15 3	78	71	38	22	44 20					
19	18	24	53	4 49	49	47	4	43	15 34	79	72	15	49	46 7					
20	19	22	55	5 5	50	48	0	44	16 6	80	72	51	12	47 53					
21	20	20	54	5 21	51	48	56	36	16 38	81	73	24	20	49 38					
22	21	18	51	5 38	52	49	32	18	17 10	82	73	54	55	51 23					
23	22	16	46	5 55	53	50	47	49	17 46	83	74	22	43	53 8					
24	23	14	40	6 12	54	51	43	10	18 21	84	74	47	32	54 42					
25	24	12	31	6 31	55	52	38	17	19 0	85	75	9	3	56 11					
26	25	10	22	6 47	56	53	33	13	19 37	86	75	27	3	57 28					
27	26	8	10	7 5	57	54	27	53	20 18	87	75	41	19	58 32					
28	27	5	56	7 23	58	55	22	19	21 0	88	75	51	39	59 20					
29	28	3	38	7 43	59	56	16	28	21 43	89	75	57	55	59 49					
30	29	1	20	8 1	60	57	10	18	22 29	90	76	0	0	60 0					

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
Arcuales					Arcuales					Arcuales				
Defectus	g	m	fa	Lat. ralis	Defectus	g	m	fa	Lat. ralis	Defectus	g	m	fa	Lat. ralis
1	0	58	28	0 14	31	30	7	18	7 44	61	58	27	7	21 50
2	1	56	27	0 27	32	31	5	13	8 2	62	59	21	8	22 38
3	2	55	23	0 41	33	32	3	5	8 21	63	60	14	48	23 28
4	3	53	20	0 55	34	33	0	55	8 40	64	61	8	6	24 19
5	4	52	17	1 2	35	33	58	41	9 0	65	62	0	57	25 15
6	5	50	44	1 22	36	34	56	23	9 19	66	62	53	24	26 13
7	6	49	11	1 35	37	35	54	5	9 38	67	63	45	18	27 16
8	7	47	37	1 49	38	36	51	42	10 0	68	64	36	40	28 20
9	8	46	3	2 3	39	37	49	14	10 21	69	65	27	27	29 27
10	9	44	28	2 17	40	38	46	42	10 44	70	66	17	31	30 41
11	10	42	52	2 32	41	39	44	8	11 6	71	67	6	54	31 55
12	11	41	12	2 45	42	40	41	29	11 28	72	67	55	23	33 15
13	12	39	41	3 0	43	41	38	44	11 51	73	68	42	34	34 43
14	13	38	3	3 14	44	42	35	55	12 16	74	69	29	33	36 7
15	14	36	25	3 28	45	43	32	59	12 42	75	70	14	57	37 39
16	15	34	46	3 43	46	44	29	58	13 7	76	70	59	2	39 20
17	16	33	6	3 57	47	45	26	52	13 34	77	71	41	42	41 0
18	17	31	24	4 13	48	46	23	38	14 1	78	72	22	42	42 51
19	18	29	42	4 28	49	47	20	17	14 30	79	73	1	56	44 38
20	19	28	0	4 42	50	48	16	50	14 59	80	73	39	5	46 30
21	20	26	15	4 58	51	49	13	14	15 29	81	74	13	58	48 24
22	21	24	29	5 13	52	50	9	28	16 1	82	74	46	18	50 21
23	22	22	41	5 29	53	51	5	35	16 34	83	75	15	51	52 10
24	23	20	52	5 45	54	52	1	31	17 7	84	75	42	14	53 57
25	24	19	2	6 1	55	52	57	17	17 43	85	76	5	14	55 38
26	25	17	9	6 19	56	53	52	50	18 20	86	76	24	31	57 5
27	26	15	15	6 35	57	54	48	11	18 58	87	76	39	51	58 19
28	27	13	19	6 52	58	55	43	19	19 39	88	76	50	59	59 14
29	28	11	21	7 2	59	56	38	11	20 20	89	76	57	44	59 49
30	29	9	21	7 27	60	57	32	47	21 4	90	77	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defécétes.					Defécétes.					Defécétes.				
Arcuales					Arcuales					Arcuales				
g	g	m	fa	m fa	g	g	m	fa	m fa	g	g	m	fa	m fa
1	0	57	42	0 12	31	30	15	2		61	58	48	57	20 18
		58	41				58	13	7 8			54	49	
2	1	57	23	0 25	32	31	13	45	7 25	62	59	43	46	21 2
		58	41				58	11				54	30	
3	2	56	4	0 38	33	32	11	26	7 42	63	60	38	16	21 51
		58	41				58	9				54	9	
4	3	54	45	0 50	34	33	9	35	8 0	64	61	32	25	22 42
		58	41				58	6				53	47	
5	4	53	26	1 3	35	34	7	41	8 17	65	62	26	12	23 37
		58	40				58	2				53	25	
6	5	52	6	1 16	36	35	5	43	8 37	66	63	19	37	24 31
		58	40				58	0				52	57	
7	6	50	46	1 29	37	36	3	43	8 56	67	64	12	34	25 30
		58	40				57	59				52	26	
8	7	49	26	1 41	38	37	1	42	9 14	68	65	5	0	26 34
		58	40				57	53				51	54	
9	8	48	6	1 53	39	37	59	35	9 34	69	65	56	54	27 39
		58	39				57	51				51	18	
10	9	46	45	2 6	40	38	57	26	9 54	70	66	48	12	28 49
		58	39				57	48				50	37	
11	10	45	24	2 19	41	39	55	14	10 14	71	67	38	49	30 2
		58	38				57	43				49	49	
12	11	44	2	2 33	42	40	52	57	10 36	72	68	28	38	31 23
		58	37				57	38				49	2	
13	12	42	41	2 45	43	41	50	35	10 58	73	69	17	40	32 45
		58	36				57	36				48	0	
14	13	41	17	2 59	44	42	48	11	11 20	74	70	5	40	34 16
		58	36				57	30				46	58	
15	14	39	53	3 12	45	43	45	41	11 43	75	70	52	38	35 51
		58	36				57	24				45	44	
16	15	38	29	3 26	46	44	43	5	12 8	76	71	38	22	37 27
		58	34				57	21				44	20	
17	16	37	3	3 39	47	45	40	26	12 33	77	72	22	42	39 14
		58	34				57	13				42	51	
18	17	35	37	3 53	48	46	37	39	12 58	78	73	5	33	41 1
		58	33				57	8				41	1	
19	18	34	10	4 6	49	47	34	47	13 25	79	73	46	34	42 56
		58	32				57	2				39	1	
20	19	32	42	4 20	50	48	31	49	13 52	80	74	25	45	44 59
		58	31				56	54				36	47	
21	20	31	13	4 35	51	49	28	43	14 21	81	75	2	22	47 0
		58	29				56	46				34	17	
22	21	29	42	4 49	52	50	25	20	14 51	82	75	36	39	48 59
		58	28				56	40				31	22	
23	22	28	10	5 4	53	51	22	9	15 20	83	76	8	1	51 4
		58	27				56	29				28	10	
24	23	26	37	5 18	54	52	18	38	15 53	84	76	36	11	53 6
		58	26				56	22				24	41	
25	24	25	3	5 33	55	53	15	0	16 25	85	77	0	52	54 56
		58	25				56	10				20	44	
26	25	23	28	5 48	56	54	11	10	17 0	86	77	21	36	56 37
		58	22				55	59				16	34	
27	26	21	50	6 4	57	55	7	9	17 35	87	77	38	10	58 1
		58	21				55	49				12	3	
28	27	20	11	6 19	58	56	2	58	18 13	88	77	50	13	59 5
		58	19				55	33				7	20	
29	28	18	30	6 35	59	56	58	31	18 53	89	77	57	33	59 44
		58	18				55	20				2	27	
30	29	16	48	6 51	60	57	53	51	19 36	90	78	0	0	60 0
		58	14				55	6				0	0	

ARABES					ARABES					ARABES				
Defécédées					Defécédées					Defécédées				
Arcales					Arcales					Arcales				
g	m	fa	Lat. ralis	Diff. fer. tia	g	m	fa	Lat. ralis	Diff. fer. tia	g	m	fa	Lat. ralis	Diff. fer. tia
1	0	58	54	0 11	31	30	22	10	6 32	61	59	9	15	
2	1	57	48	0 23	32	31	20	40	6 47	62	60	4	48	18 43
3	2	56	42	0 34	33	32	19	8	7 3	63	61	0	7	19 29
4	3	55	35	0 46	34	33	17	35	7 19	64	61	55	7	20 12
5	4	54	29	0 57	35	34	15	58	7 36	65	62	49	49	21 0
6	5	53	22	1 2	36	35	14	20	7 52	66	63	44	19	21 50
7	6	52	15	1 20	37	36	12	39	8 11	67	64	38	4	22 43
8	7	51	7	1 32	38	37	10	56	8 27	68	65	31	34	23 41
9	8	49	59	1 44	39	38	9	9	8 45	69	66	24	33	24 39
10	9	48	51	1 56	40	39	7	20	9 4	70	67	17	1	25 45
11	10	47	43	2 7	41	40	5	28	9 24	71	68	8	51	26 51
12	11	46	35	2 20	42	41	3	33	9 42	72	69	0	1	28 3
13	12	45	26	2 32	43	42	1	37	10 3	73	69	50	25	29 21
14	13	44	16	2 43	44	42	59	31	10 24	74	70	39	56	30 42
15	14	43	5	2 56	45	43	57	24	10 46	75	71	28	27	32 10
16	15	41	55	3 7	46	44	55	13	11 7	76	72	15	49	33 43
17	16	40	42	3 21	47	45	52	59	11 30	77	73	1	56	35 23
18	17	39	30	3 33	48	46	50	37	11 54	78	74	46	34	37 9
19	18	38	16	3 46	49	47	48	12	12 19	79	74	29	30	39 1
20	19	37	2	3 59	50	48	45	41	12 44	80	75	10	34	41 4
21	20	35	48	4 11	51	49	43	4	13 10	81	75	49	22	43 4
22	21	34	31	4 25	52	50	40	20	13 39	82	76	25	38	45 14
23	22	33	14	4 37	53	51	37	29	14 6	83	76	59	5	47 32
24	23	31	55	4 51	54	52	34	34	14 36	84	77	29	17	49 47
25	24	30	36	5 6	55	53	31	25	15 7	85	77	26	31	51 56
26	25	29	16	5 19	56	54	28	10	15 38	86	78	18	13	54 5
27	26	27	54	5 32	57	55	24	44	16 14	87	78	36	11	56 2
28	27	26	30	5 47	58	56	21	11	16 48	88	78	49	18	57 40
29	28	25	5	6 2	59	57	17	24	17 24	89	78	57	59	58 57
30	29	23	39	6 17	60	58	13	27	18 3	90	79	0	0	59 45
		58	31				55	48				0	0	60 0

ARCUS						ARCUS						ARCUS					
Defcédètes.						Defcédètes.						Defcédètes.					
Arcuales						Arcuales						Arcuales					
g	g	m	fa	m	fa	g	g	m	fa	m	fa	g	g	m	fa	m	fa
1	0	59	5	0	11	31	30	28	42	5	56	61	59	27	58		
2	1	58	11	0	20	32	31	27	27	6	10	62	60	24	17	17	46
3	2	57	16	0	31	33	32	26	11	6	21	63	61	20	19	48	18 29
4	3	56	21	0	41	34	33	24	24	6	38	64	62	16	7		
5	4	55	26	0	52	35	34	23	34	6	53	65	63	11	39	12	20 1
6	5	54	31	1	2	36	35	22	12	7	9	66	64	6	51		
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8	7	52	39	1	24	38	37	19	23	7	40	68	65	56	13		
9	8	51	43	1	35	39	38	17	54	7	57	69	66	50	18		
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11	10	49	50	1	56	41	40	14	52	8	31	71	68	36	54		
12	11	48	55	2	5	42	41	13	15	8	50	72	69	29	22		
13	12	47	58	2	16	43	42	11	36	9	7	73	70	21	7		
14	13	46	59	2	28	44	43	9	55	9	27	74	71	12	6		
15	14	45	1	2	39	45	44	8	10	9	46	75	72	2	10		
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17	16	44	3	3	1	47	46	4	29	10	27	77	73	39	5		
18	17	43	3	3	12	48	47	2	31	10	49	78	74	25	35		
19	18	42	2	3	24	49	48	0	31	11	12	79	75	10	34		
20	19	41	1	3	36	50	48	58	25	11	35	80	75	53	38		
21	20	39	59	3	47	51	49	56	14	11	59	81	76	34	36		
22	21	38	56	3	59	52	50	54	59	12	21	82	77	13	10		
23	22	37	51	4	12	53	51	51	35	12	50	83	77	48	52		
24	23	36	46	4	25	54	52	49	7	13	18	84	78	21	13		
25	24	35	42	4	36	55	53	46	32	13	46	85	78	49	53		
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27	26	33	26	5	2	57	55	40	58	14	48	87	79	33	51		
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29	28	31	7	5	27	59	57	34	48	15	54	89	79	57	2		
30	29	29	56	5	41	60	58	31	30	16	30	90	80	0	0		

TRANS					TRANS					TRANS				
Arcuales					Arcuales					Arcuales				
Defectetes	g	m	fa	Lat. ralis	Defectetes	g	m	fa	Lat. ralis	Defectetes	g	m	fa	Lat. ralis
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3	2	57	42	0 28	33	32	32	34	5 45	63	61	38	4 8	16 4
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6	5	55	33	0 56	36	35	29	21	6 24	66	64	27	41	18 57
7	6	54	48	1 5	37	36	28	13	6 39	67	65	23	39	19 43
8	7	54	3	1 15	38	37	27	3	6 53	68	66	18	55	20 35
9	8	53	18	1 24	39	38	25	51	7 8	69	67	14	50	21 32
10	9	52	33	1 34	40	39	24	38	7 23	70	68	8	38	22 35
11	10	51	46	1 43	41	40	23	23	7 38	71	69	2	31	23 41
12	11	51	0	1 54	42	41	22	5	7 54	72	69	56	3	24 50
13	12	50	14	2 3	43	42	20	43	8 12	73	70	49	35	26 10
14	13	49	27	2 13	44	43	19	22	8 28	74	71	42	1	27 29
15	14	48	40	2 22	45	44	17	56	8 46	75	72	33	38	29 0
16	15	47	52	2 33	46	45	16	28	9 5	76	73	24	20	30 35
17	16	47	4	2 42	47	46	14	56	9 23	77	74	13	58	32 20
18	17	46	15	2 53	48	47	13	20	9 44	78	75	2	22	34 17
19	18	45	26	3 3	49	48	11	43	10 3	79	75	49	22	36 16
20	19	44	37	3 14	50	49	10	0	10 24	80	76	34	36	38 34
21	20	43	46	3 24	51	50	8	13	10 45	81	77	17	57	40 53
22	21	42	55	3 35	52	51	6	22	11 9	82	77	58	5	43 26
23	22	42	3	3 45	53	52	4	25	11 33	83	78	36	55	46 11
24	23	41	11	3 56	54	53	2	25	11 58	84	79	14	50	48 53
25	24	40	18	4 7	55	54	0	18	12 23	85	79	42	54	51 33
26	25	39	23	4 19	56	54	58	4	12 50	86	80	9	28	54 14
27	26	38	28	4 30	57	55	55	46	13 18	87	80	31	1	56 34
28	27	37	32	4 42	58	56	53	18	13 49	88	80	46	56	58 24
29	28	36	38	4 54	59	57	50	42	14 21	89	80	56	42	59 36
30	29	35	47	5 6	60	58	48	0	14 52	90	81	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédentes.					Defcédentes.					Defcédentes.				
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3	2	58	15	0 24	33	32	38	19		63	61	55	7	14 19
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5	4	57	25	0 41	35	34	36	30	8	65	63	49	45	15 31
6	5	56	29	0 49	36	35	35	7	5 27	66	64	46	51	16 9
7	6	55	53	0 58	37	36	34	45	5 40	67	65	43	38	16 52
8	7	55	18	1 6	38	37	33	52	5 52	68	66	40	12	17 37
9	8	54	42	1 14	39	38	32	7	6 5	69	67	39	18	18 27
10	9	54	23	1 23	40	39	32	56	2 6 19	70	68	35	2	19 20
11	10	53	29	1 32	41	40	31	0	6 33	71	69	31	41	20 14
12	11	52	54	1 40	42	41	29	58	6 46	72	70	26	13	21 15
13	12	52	17	1 48	43	42	29	56	7 1	73	71	21	50	22 23
14	13	51	40	1 57	44	43	28	54	7 16	74	72	15	45	23 33
15	14	51	2	2 6	45	44	27	55	7 30	75	73	9	40	24 49
16	15	50	25	2 14	46	45	26	51	7 46	76	74	3	38	26 16
17	16	49	46	2 22	47	46	25	46	8 2	77	75	54	55	27 48
18	17	49	8	2 32	48	47	24	45	8 19	78	76	51	24	29 33
19	18	48	29	2 42	49	48	23	42	8 37	79	77	46	18	31 22
20	19	47	51	2 50	50	49	21	38	8 55	80	78	48	9	33 27
21	20	47	10	3 0	51	50	20	34	9 13	81	79	25	38	35 42
22	21	46	30	3 9	52	51	18	33	9 33	82	80	23	40	38 5
23	22	45	49	3 20	53	52	17	31	9 53	83	81	20	42	40 50
24	23	45	7	3 29	54	53	16	27	10 15	84	82	16	44	43 41
25	24	44	25	3 39	55	54	15	25	10 37	85	83	13	46	46 42
26	25	43	42	3 49	56	55	12	23	11 0	86	84	10	48	49 52
27	26	42	58	3 59	57	56	10	20	11 24	87	85	7	50	52 52
28	27	42	14	4 9	58	57	9	18	11 49	88	86	5	52	55 39
29	28	41	28	4 20	59	58	7	16	12 15	89	87	4	54	57 57
30	29	40	43	4 31	60	59	5	14	12 45	90	88	3	56	59 29
		39	13				2	13	13 14			0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédetes					Defcédetes					Defcédetes				
Arcuales					Arcuales					Arcuales				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
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3	2	58	39	0 22	33	32	43	24	4 24	63	62	10	24	13 1
4	3	58	22	0 29	34	33	42	45	4 34	64	63	8	16	13 34
5	4	57	45	0 36	35	34	42	5	4 45	65	64	5	56	14 10
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8	7	56	24	0 57	38	37	40	1	5 18	68	66	57	57	16 12
9	8	55	36	1 5	39	38	39	18	5 28	69	67	54	51	16 57
10	9	55	29	1 11	40	39	38	34	5 40	70	68	51	27	17 50
11	10	55	1	1 19	41	40	37	47	5 53	71	69	47	47	18 44
12	11	54	34	1 26	42	41	37	0	6 5	72	70	43	45	19 44
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17	16	52	10	2 5	47	46	32	38	7 14	77	75	15	51	26 23
18	17	51	40	2 12	48	47	31	41	7 28	78	76	8	1	28 10
19	18	51	11	2 20	49	48	30	41	7 44	79	76	59	5	30 12
20	19	50	41	2 28	50	49	29	37	8 1	80	77	48	52	32 21
21	20	50	10	2 37	51	50	28	31	8 21	81	78	36	55	34 55
22	21	49	39	2 45	52	51	27	24	8 36	82	79	23	6	37 37
23	22	49	8	2 53	53	52	26	13	8 54	83	80	6	47	40 38
24	23	48	36	3 1	54	53	25	0	9 13	84	80	47	25	43 56
25	24	48	4	3 10	55	54	23	41	9 34	85	81	24	19	47 25
26	25	47	31	3 19	56	55	22	18	9 57	86	81	56	34	51 1
27	26	46	26	3 28	57	56	20	53	10 18	87	82	23	14	54 26
28	27	46	25	3 36	58	57	19	22	10 42	88	82	43	17	57 19
29	28	45	48	3 46	59	58	17	48	11 6	89	82	55	47	59 16
30	29	45	14	3 54	60	59	16	6	11 32	90	83	0	0	60 0

Defécédées.	ARCUS				Dif féré tia Zate ralis.	Zate ralis.	ARCUS				Dif féré tia Zate ralis.	Zate ralis.	ARCUS				Dif féré tia Zate ralis.	Zate ralis.
	g	m	fa	m fa			g	m	fa	m fa			g	m	fa	m fa		
1	0	59	40	0 6		31	30	48	42	3 27		61	60	26	19	10 14		
2	1	59	41	0 12		32	31	48	15	3 34		62	61	24	55	10 38		
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6	5	58	1	0 36		36	35	46	20	4 10		66	65	18	16	12 38		
7	6	59	40	0 43		37	36	45	50	4 19		67	66	16	17	13 12		
8	7	57	21	0 49		38	37	45	19	4 28		68	67	14	9	13 51		
9	8	57	1	0 54		39	38	44	46	4 39		69	68	11	48	14 32		
10	9	56	40	1 1		40	39	44	14	4 48		70	69	9	17	15 17		
11	10	56	20	1 7		41	40	43	40	4 59		71	70	6	31	16 4		
12	11	56	0	1 14		42	41	43	5	5 9		72	71	3	29	16 58		
13	12	55	40	1 20		43	42	42	29	5 21		73	72	0	6	17 57		
14	13	55	18	1 27		44	43	41	52	5 31		74	73	56	21	19 3		
15	14	54	58	1 32		45	44	41	13	5 43		75	74	52	13	20 12		
16	15	54	36	1 39		46	45	40	34	5 55		76	75	47	32	21 31		
17	16	54	15	1 45		47	46	39	52	6 8		77	76	42	14	23 0		
18	17	53	52	1 53		48	47	39	9	6 21		78	77	36	11	24 41		
19	18	53	31	1 58		49	48	38	25	6 35		79	78	29	17	26 31		
20	19	53	9	2 6		50	49	37	38	6 49		80	79	21	13			
21	20	52	47	2 11		51	50	36	51	7 4		81	80	11	50	28 40		
22	21	52	24	2 19		52	51	36	0	7 18		82	81	0	43	31 4		
23	22	52	1	2 26		53	52	35	7	7 34		83	82	46	42	33 44		
24	23	51	37	2 34		54	53	34	13	7 51		84	83	47	25	36 54		
25	24	51	14	2 41		55	54	33	15	8 8		85	84	43	56	40 23		
26	25	50	50	2 48		56	55	32	15	8 27		86	85	40	23	44 17		
27	26	50	25	2 55		57	56	31	11	8 46		87	86	35	51	48 25		
28	27	49	59	3 4		58	57	30	4	9 6		88	87	30	5	52 36		
29	28	49	34	3 10		59	58	28	54	9 27		89	88	22	56	56 23		
30	29	49	8	3 19		60	59	27	38	9 50		90	89	17	40	59 1		

ARCUS					Diff fere tia	ARCUS					Diff fere tia	ARCUS					Diff fere tia
Defécédées						Defécédées						Defécédées					
Arcuales					Late ralis	Arcuales					Late ralis	Arcuales					Late ralis
g	m	fa	m	fa		g	m	fa	m	fa		g	m	fa	m	fa	
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2	1	59	33	0	10	32	31	51	49	2	57	62	61	35	33	0	8 46
3	2	59	19	0	15	33	32	51	31	3	3	63	62	34	32	0	9 7
4	3	59	5	0	20	34	33	51	11	3	10	64	63	33	24	0	9 31
5	4	58	51	0	25	35	34	50	51	3	17	65	64	32	11	0	9 58
6	5	58	37	0	30	36	35	50	39	3	24	66	65	30	54	0	10 24
7	6	58	24	0	34	37	36	50	9	3	33	67	66	29	29	0	10 54
8	7	58	10	0	39	38	37	49	47	3	41	68	67	28	0	0	11 26
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13	12	57	0	1	4	43	42	47	50	4	22	73	72	18	3	0	14 55
14	13	56	45	1	10	44	43	47	23	4	32	74	73	15	24	0	15 49
15	14	56	30	1	16	45	44	46	66	4	42	75	74	12	24	0	16 51
16	15	54	15	1	21	46	45	46	29	4	52	76	75	9	3	0	18 0
17	16	56	0	1	26	47	46	46	0	5	2	77	76	5	14	0	19 17
18	17	55	45	1	32	48	47	45	30	5	12	78	77	0	52	0	20 44
19	18	55	29	1	38	49	48	45	0	5	23	79	77	55	48	0	22 25
20	19	55	15	1	43	50	49	44	27	5	35	80	78	49	53	0	24 22
21	20	54	59	1	49	51	50	43	55	5	47	81	79	42	54	0	26 34
22	21	54	43	1	54	52	51	43	18	6	0	82	80	34	27	0	29 15
23	22	54	27	2	0	53	52	42	41	6	12	83	81	24	19	0	32 15
24	23	54	11	2	5	54	53	42	4	6	26	84	82	11	44	0	35 51
25	24	53	55	2	11	55	54	41	23	6	41	85	82	56	1	0	39 59
26	25	53	38	2	17	56	55	40	15	6	56	86	83	36	0	0	44 46
27	26	53	20	2	24	57	56	39	57	7	11	87	84	10	16	0	49 49
28	27	53	3	2	30	58	57	39	10	7	27	88	84	36	59	0	54 46
29	28	52	44	2	37	59	58	38	21	7	46	89	84	5	4	0	58 35
30	29	52	27	2	43	60	59	37	28	8	4	90	85	0	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defcédentes.					Defcédentes.					Defcédentes.				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
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3	2	59	34	0 11	33	32	54	34	2 23	63	62	44	39	7 9
4	3	59	25	0 15	34	33	54	21	2 29	64	63	42	55	7 27
5	4	59	16	0 19	35	34	54	8	2 34	65	64	42	9	7 48
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7	6	58	58	0 27	37	36	53	42	2 45	67	66	40	23	8 34
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9	8	58	40	0 35	39	38	53	13	2 58	69	68	38	21	9 26
10	9	58	31	0 39	40	39	52	57	3 4	70	69	37	12	9 55
11	10	58	22	0 43	41	40	52	44	3 10	71	70	35	55	10 28
12	11	58	13	0 47	42	41	52	28	3 17	72	71	34	12	11 4
13	12	58	4	0 51	43	42	52	12	3 25	73	72	32	58	11 44
14	13	57	55	0 55	44	43	51	55	3 32	74	73	31	13	12 30
15	14	57	46	0 58	45	44	51	38	3 39	75	74	29	15	13 18
16	15	57	36	1 3	46	45	51	21	3 46	76	75	27	3	14 16
17	16	57	26	1 7	47	46	51	2	3 55	77	76	24	31	15 20
18	17	57	17	1 11	48	47	50	42	4 4	78	77	21	36	16 34
19	18	57	7	1 15	49	48	50	23	4 12	79	78	18	13	17 58
20	19	56	58	1 19	50	49	50	2	4 21	80	79	14	15	19 36
21	20	56	48	1 24	51	50	49	42	4 30	81	80	9	28	21 33
22	21	56	37	1 29	52	51	49	18	4 41	82	81	3	42	23 51
23	22	56	27	1 33	53	52	48	53	4 51	83	82	56	34	26 40
24	23	56	16	1 38	54	53	48	30	5 2	84	83	47	35	30 5
25	24	56	6	1 43	55	54	48	4	5 13	85	84	36	0	34 16
26	25	55	55	1 47	56	55	47	38	5 23	86	85	20	46	39 19
27	26	55	44	1 52	57	56	47	8	5 37	87	86	0	5	45 27
28	27	55	33	1 56	58	57	46	37	5 52	88	87	31	45	51 59
29	28	55	21	2 2	59	58	46	7	6 3	89	88	52	39	57 39
30	29	55	10	2 7	60	59	45	32	6 18	90	89	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defécédées					Defécédées					Defécédées				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
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3	2	59	45	0 9	33	32	56	57	53	63	62	50	48	5 7
4	3	59	40	0 11	34	33	56	50	52	64	63	50	22	5 20
5	4	59	35	0 14	35	34	56	42	52	65	64	49	57	5 35
6	5	59	30	0 17	36	35	56	34	53	66	65	49	27	5 51
7	6	59	25	0 19	37	36	56	27	52	67	66	48	57	6 8
8	7	59	20	0 22	38	37	56	19	52	68	67	48	23	6 26
9	8	59	15	0 25	39	38	56	11	50	69	68	47	47	6 48
10	9	59	10	0 27	40	39	56	1	53	70	69	47	7	7 9
11	10	59	5	0 30	41	40	55	54	51	71	70	46	23	7 33
12	11	59	0	0 34	42	41	55	45	52	72	71	45	36	7 58
13	12	58	55	0 36	43	42	55	37	50	73	72	44	42	8 28
14	13	58	50	0 39	44	43	55	27	50	74	73	43	43	8 41
15	14	58	44	0 42	45	44	55	17	50	75	74	42	33	9 39
16	15	58	39	0 45	46	45	55	7	50	76	75	41	19	10 20
17	16	58	33	0 48	47	46	54	57	49	77	76	39	51	11 8
18	17	58	28	0 51	48	47	54	46	49	78	77	38	10	12 3
19	18	58	22	0 54	49	48	54	35	48	79	78	36	11	13 7
20	19	58	17	0 57	50	49	54	23	49	80	79	33	51	14 24
21	20	58	12	1 0	51	50	54	12	50	81	80	31	1	15 55
22	21	58	6	1 3	52	51	53	59	45	82	81	27	35	17 45
23	22	58	0	1 7	53	52	53	44	48	83	82	23	14	20 3
24	23	57	54	1 10	54	53	53	32	45	84	83	17	40	22 56
25	24	57	49	1 12	55	54	53	17	44	85	84	10	16	26 43
26	25	57	42	1 17	56	55	53	1	44	86	85	0	5	31 40
27	26	57	36	1 20	57	56	52	45	44	87	85	45	32	38 12
28	27	57	29	1 24	58	57	52	29	41	88	86	23	44	46 37
29	28	57	23	1 26	59	58	52	10	40	89	86	50	18	55 36
30	29	57	17	1 31	60	59	51	50	42	90	87	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defectus.					Defectus.					Defectus.				
g	m	fa	m	fa	g	m	fa	m	fa	g	m	fa	m	fa
1	59	58	0	2	31	59	58	0	57	61	59	58	14	2 49
2	59	58	0	3	32	59	58	0	59	62	59	58	51	2 57
3	59	54	0	4	33	58	59	1	1	63	55	55	47	3 4
4	59	51	0	7	34	58	55	1	4	64	55	42	50	3 13
5	59	49	0	8	35	58	56	1	6	65	55	32	46	3 22
6	59	47	0	10	36	58	58	1	8	66	55	18	47	3 31
7	59	44	0	12	37	58	56	1	11	67	55	5	44	3 41
8	59	42	0	13	38	58	56	1	13	68	54	49	46	3 53
9	59	40	0	15	39	58	58	1	16	69	54	35	41	4 5
10	59	37	0	17	40	58	57	1	19	70	54	16	40	4 18
11	59	35	0	18	41	58	56	1	22	71	53	56	38	4 31
12	59	34	0	20	42	58	56	1	24	72	53	34	36	4 49
13	59	31	0	22	43	58	56	1	28	73	53	10	34	5 6
14	59	29	0	24	44	57	54	1	31	74	52	44	28	5 26
15	59	26	0	26	45	57	57	1	35	75	52	12	27	5 51
16	59	24	0	27	46	57	55	1	38	76	51	39	20	6 16
17	59	21	0	29	47	57	54	1	41	77	50	59	14	6 45
18	59	19	0	30	48	57	56	1	45	78	50	13	5	7 20
19	59	16	0	32	49	57	55	1	49	79	49	18	57	7 59
20	59	14	0	35	50	57	55	1	52	80	48	15	41	8 47
21	59	12	0	37	51	57	54	1	57	81	46	56	24	9 46
22	59	9	0	40	52	57	54	2	1	82	45	20	57	10 58
23	59	7	0	43	53	57	54	2	5	83	43	17	57	12 30
24	59	4	0	41	54	57	54	2	10	84	40	36	56	14 27
25	59	1	0	45	55	57	54	2	14	85	36	59	54	17 5
26	58	59	0	46	56	56	55	2	19	86	31	45	51	20 54
27	58	56	0	48	57	56	54	2	25	87	23	44	46	26 34
28	58	53	0	50	58	56	51	2	30	88	10	21	35	33
29	58	49	0	51	59	56	51	2	37	89	45	54	14	49 10
30	58	48	0	54	60	56	52	2	43	90	0	0	0	60 0

ARCUS					ARCUS					ARCUS				
Defectus					Defectus					Defectus				
g	m	fa	mi	fa	g	m	fa	mi	fa	g	m	fa	mi	fa
1	0	0	0	0	1	0	0	0	0	1	0	0	0	0
2	1	0	0	0	2	1	0	0	0	2	1	0	0	0
3	2	0	0	0	3	2	0	0	0	3	2	0	0	0
4	3	0	0	0	4	3	0	0	0	4	3	0	0	0
5	4	0	0	0	5	4	0	0	0	5	4	0	0	0
6	5	0	0	0	6	5	0	0	0	6	5	0	0	0
7	6	0	0	0	7	6	0	0	0	7	6	0	0	0
8	7	0	0	0	8	7	0	0	0	8	7	0	0	0
9	8	0	0	0	9	8	0	0	0	9	8	0	0	0
10	9	0	0	0	10	9	0	0	0	10	9	0	0	0
11	10	0	0	0	11	10	0	0	0	11	10	0	0	0
12	11	0	0	0	12	11	0	0	0	12	11	0	0	0
13	12	0	0	0	13	12	0	0	0	13	12	0	0	0
14	13	0	0	0	14	13	0	0	0	14	13	0	0	0
15	14	0	0	0	15	14	0	0	0	15	14	0	0	0
16	15	0	0	0	16	15	0	0	0	16	15	0	0	0
17	16	0	0	0	17	16	0	0	0	17	16	0	0	0
18	17	0	0	0	18	17	0	0	0	18	17	0	0	0
19	18	0	0	0	19	18	0	0	0	19	18	0	0	0
20	19	0	0	0	20	19	0	0	0	20	19	0	0	0
21	20	0	0	0	21	20	0	0	0	21	20	0	0	0
22	21	0	0	0	22	21	0	0	0	22	21	0	0	0
23	22	0	0	0	23	22	0	0	0	23	22	0	0	0
24	23	0	0	0	24	23	0	0	0	24	23	0	0	0
25	24	0	0	0	25	24	0	0	0	25	24	0	0	0
26	25	0	0	0	26	25	0	0	0	26	25	0	0	0
27	26	0	0	0	27	26	0	0	0	27	26	0	0	0
28	27	0	0	0	28	27	0	0	0	28	27	0	0	0
29	28	0	0	0	29	28	0	0	0	29	28	0	0	0
30	29	0	0	0	30	29	0	0	0	30	29	0	0	0

ARCUS						ARCUS						ARCUS					
Dif		ferē		tia		Dif		ferē		tia		Dif		ferē		tia	
Lateralis		Lateralis		Lateralis		Lateralis		Lateralis		Lateralis		Lateralis		Lateralis		Lateralis	
Descēdētes.		Arcuales		Arcuales		Descēdētes.		Arcuales		Arcuales		Descēdētes.		Arcuales		Arcuales	
g	g	m	fa	m	fa	g	g	m	fa	m	fa	g	g	m	fa	m	fa
1	1	0	0	0	0	31	31	0	0	0	0	61	61	0	0	0	0
2	2	0	0	0	0	32	32	0	0	0	0	62	62	0	0	0	0
3	3	0	0	0	0	33	33	0	0	0	0	63	63	0	0	0	0
4	4	0	0	0	0	34	34	0	0	0	0	64	64	0	0	0	0
5	5	0	0	0	0	35	35	0	0	0	0	65	65	0	0	0	0
6	6	0	0	0	0	36	36	0	0	0	0	66	66	0	0	0	0
7	7	0	0	0	0	37	37	0	0	0	0	67	67	0	0	0	0
8	8	0	0	0	0	38	38	0	0	0	0	68	68	0	0	0	0
9	9	0	0	0	0	39	39	0	0	0	0	69	69	0	0	0	0
10	10	0	0	0	0	40	40	0	0	0	0	70	70	0	0	0	0
11	11	0	0	0	0	41	41	0	0	0	0	71	71	0	0	0	0
12	12	0	0	0	0	42	42	0	0	0	0	72	72	0	0	0	0
13	13	0	0	0	0	43	43	0	0	0	0	73	73	0	0	0	0
14	14	0	0	0	0	44	44	0	0	0	0	74	74	0	0	0	0
15	15	0	0	0	0	45	45	0	0	0	0	75	75	0	0	0	0
16	16	0	0	0	0	46	46	0	0	0	0	76	76	0	0	0	0
17	17	0	0	0	0	47	47	0	0	0	0	77	77	0	0	0	0
18	18	0	0	0	0	48	48	0	0	0	0	78	78	0	0	0	0
19	19	0	0	0	0	49	49	0	0	0	0	79	79	0	0	0	0
20	20	0	0	0	0	50	50	0	0	0	0	80	80	0	0	0	0
21	21	0	0	0	0	51	51	0	0	0	0	81	81	0	0	0	0
22	22	0	0	0	0	52	52	0	0	0	0	82	82	0	0	0	0
23	23	0	0	0	0	53	53	0	0	0	0	83	83	0	0	0	0
24	24	0	0	0	0	54	54	0	0	0	0	84	84	0	0	0	0
25	25	0	0	0	0	55	55	0	0	0	0	85	85	0	0	0	0
26	26	0	0	0	0	56	56	0	0	0	0	86	86	0	0	0	0
27	27	0	0	0	0	57	57	0	0	0	0	87	87	0	0	0	0
28	28	0	0	0	0	58	58	0	0	0	0	88	88	0	0	0	0
29	29	0	0	0	0	59	59	0	0	0	0	89	89	0	0	0	0
30	30	0	0	0	0	60	60	0	0	0	0	90	90	0	0	0	0

Absolutum est hoc illustre Tabularum Eclypsum & Primi mobilis opus
 Arte & industria solertis viri Ioannis Winterburger,
 Impetis vero Leonardi & Lucae alantse fratrum
 Ciuium Viennensium
 Anno Chri. 1514.
 Idibus Aprilibus.
 Elimatum denuo & re-
 cognitum Summa cum diligentia
 a GEORGIO Tannstetter Collimatio
 Artium & Medicinae doctore Necnon Astronomicae rei
 Professore ordinario VIENNAE AVSTRIAE.
 IMPERANTE INVICTISS. ROMANORVM IMPERA-
 TORE MAXIMILIANO CAES. AVG. P. F. P. P.



TORE MAXIMILIANO CAES. AVG. P. P. P.
 IMPERANTE INVICTISS. ROMANORVM IMPERA
 TORE GEORGIO TAVANTIA COLLEGI
 ANTONII & MEDICINAE DOCTOREN ANTONIUM
 PROFESSOREM ORDINARIO V I E N N A E V S T R I A E.
 Eiusdem demum & re
 cogimus sedem cum dilectis
 ludo Agilae.
 Anno Christi 1544.
 Clotum Vindobonam
 Impressoribus contrahentibus fuerunt
 Antonii & Medici vici in mense Vindobonae
 Absolutum est hoc libellus Tabularum & Typis in mense



