

- ♈ Aries, head **ARI** Mar. 21–Apr. 20
- ♉ Taurus, neck. **TAU** Apr. 21–May 20
- ♊ Gemini, arms **GEM** May 21–June 20
- ♋ Cancer, breast. **CAN** June 21–July 22
- ♌ Leo, heart. **LEO** July 23–Aug. 22
- ♍ Virgo, belly **VIR** Aug. 23–Sept. 22
- ♎ Libra, reins. **LIB** Sept. 23–Oct. 22
- ♏ Scorpio, secrets. **SCO** Oct. 23–Nov. 22
- ♐ Sagittarius, thighs **SAG** Nov. 23–Dec. 21
- ♑ Capricorn, knees **CAP** Dec. 22–Jan. 19
- ♒ Aquarius, legs **AQU** Jan. 20–Feb. 19
- ♓ Pisces, feet **PSC** Feb. 20–Mar. 20

QUADRIVIUM

ASSIGNMENT 12B: ASTRONOMY -3

FOR

-ANNANDALE- THURSDAY, APRIL 25TH
OR
-FISHKILL- FRIDAY, MAY 3RD

*Although The Great Cat Lives Valiantly, Lying Scientists Say Cats Always Pass.
Animals Take Great Care Learning Vexing Lessons Since Sentience Came A Priori.*

<p>Ptolemy. <i>Tetrabiblos</i>. [2nd century AD] Translated by F. E. Robbins. The Loeb Classical Library. Cambridge, MA: Harvard University Press, 1980. Read the entire excerpt. <i>Tetrabiblos</i> was and is the bible of astrology. [literally.... <i>tetra-biblos</i> = 4-bibles]</p> <p>Alternate zodiac names: Architenens-Sagittarius, Caper-Capricorn, Amphora-Aquarius</p>	<p>English-to-Greek Names of Planets <i>Not sure about the declensions in Ancient Greek.</i> Sun = <i>Helios</i> = ἥλιος Moon = <i>Selene</i> = σελήνη Mercury = <i>Hermes</i> = Ἑρμης Venus = <i>Aphrodite</i> = Ἀφροδίτη Mars = <i>Ares</i> = Ἄρης Jupiter = <i>Dios/Zeus</i> = Διὸς Saturn = <i>Kronos</i> = Κρόνος</p>
<p>Godwin, Joscelyn, ed. <i>The Harmony of the Spheres</i>. Excerpts. Read Chapter 32 (pp204-213): Gioseffo Zarlino (1517-1590) Zarlino was perhaps the prominent music theorist of his day. His theory directly influenced Kepler. In this excerpt you can see how music theory is put to the service of astrology and vice versa.</p>	

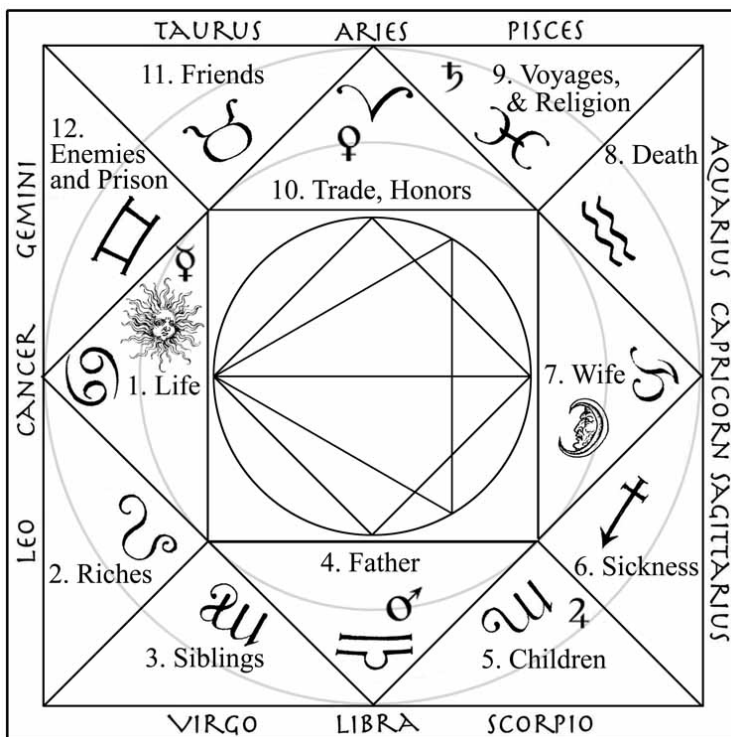


Figure 2.11: **A Horoscope** for a person born on June 21st.

The numbered triangles, starting at 9:00 are the so-called "houses."

The part of the sky called the zodiac is rotated in relation to the houses for sunrise on June 21st, the summer solstice.

The planetary arrangements shown here are arbitrary and thus no specific year is given.

In the center are diagrams for opposition, trine, and quartile aspects.

Canones de motibus & Tabulae Mediorum Motuum...

- Canon of Motions & Tables of Mean Motions...

by Prosdocimo de Beldemandis (ca. 1370-1428)

folio15r from MS-2284-Bologna- Bib. Universitaria.

Esiduum tabule mediorum motuum planetarum annis christi expansis ab unitate asque ad 28

Likewise, the table of mean motions of the planets for the years of christ expanding from unity [1] to 28.

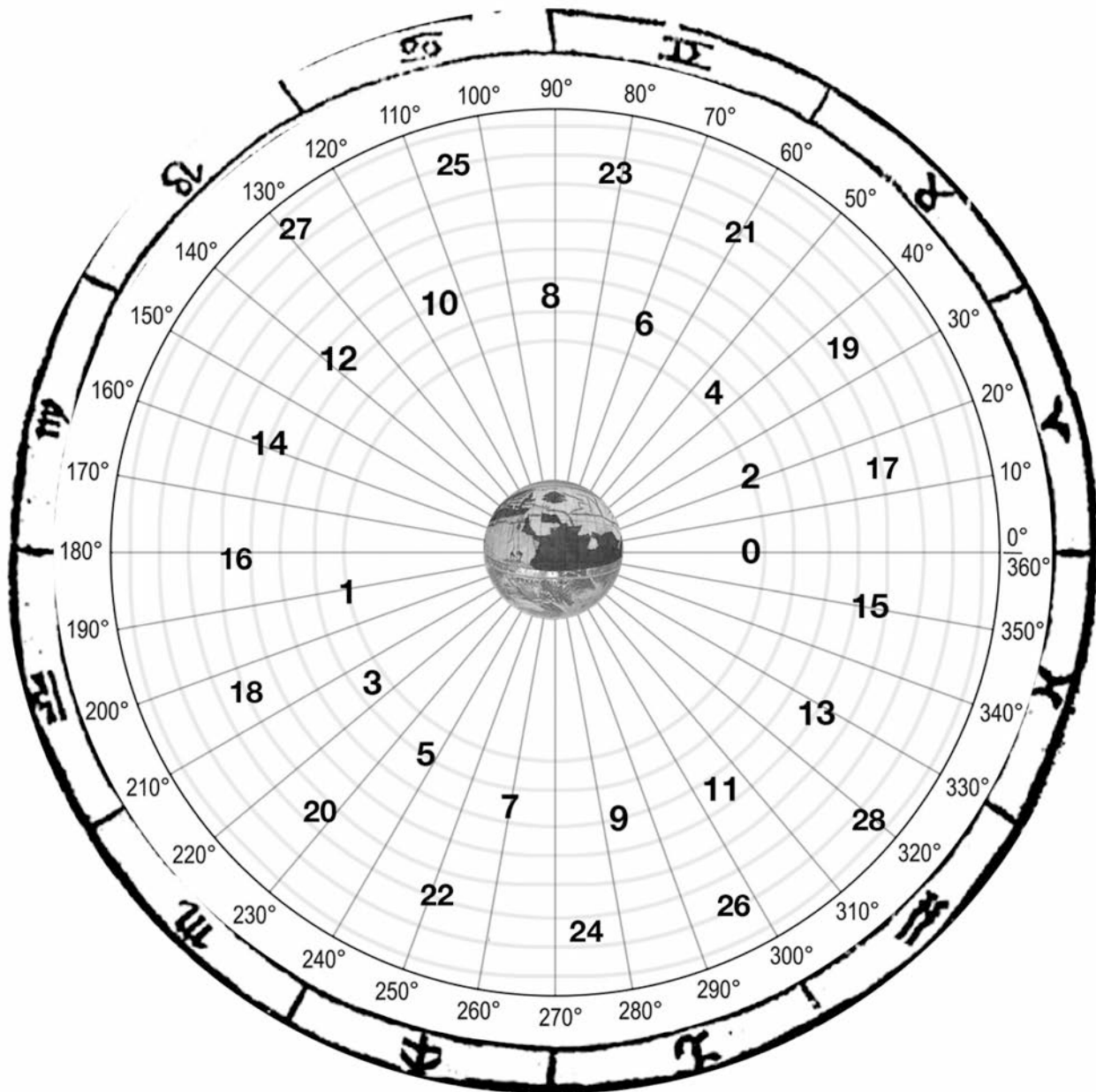
Mediꝝ motꝝ Martis Mean Motion of Mars				Modern Analysis		
sign= 60°	1°	1/60°	1/360°	Year	Conversion to degrees in decimal notation	Year-to-Year Difference
sig.	Grad.	min.	sec.			
				0	0.0000	
3	11	17	5	1	191.2847	Year ₁ - Year ₀ = 191.2847
0	22	34	10	2	22.5694	Year ₂ - Year ₁ = 191.2847
3	33	51	16	3	213.8544	Year ₃ - Year ₂ = 191.2850
0	45	39	48	4	45.6633	Year ₄ - Year ₃ = 191.8089
3	56	56	53	5	236.9481	Year _n - Year _{n-1} = 191.2848
1	8	13	58	6	68.2328	Year _n - Year _{n-1} = 191.2847
4	19	31	3	7	259.5175	Year _n - Year _{n-1} = 191.2847
1	31	19	35	8	91.3264	Year _n - Year _{n-1} = 191.8089
4	42	36	40	9	282.6111	Year _n - Year _{n-1} = 191.2847
1	53	53	46	10	113.8961	Year _n - Year _{n-1} = 191.2850
5	5	10	51	11	305.1808	Year _n - Year _{n-1} = 191.2847
2	16	59	23	12	136.9897	Year _n - Year _{n-1} = 191.8089
5	28	16	27	13	328.2742	Year _n - Year _{n-1} = 191.2844
2	39	33	33	14	159.5592	Year _n - Year _{n-1} = 191.2850
5	50	50	38	15	350.8439	Year _n - Year _{n-1} = 191.2847
3	2	39	10	16	182.6528	Year _n - Year _{n-1} = 191.8089
0	13	56	15	17	13.9375	Year _n - Year _{n-1} = 191.2847
3	25	13	21	18	205.2225	Year _n - Year _{n-1} = 191.2850
0	36	30	26	19	36.5072	Year _n - Year _{n-1} = 191.2847
3	48	18	58	20	228.3161	Year _n - Year _{n-1} = 191.8089
0	59	36	3	21	59.6008	Year _n - Year _{n-1} = 191.2847
4	10	53	8	22	250.8856	Year _n - Year _{n-1} = 191.2847
1	22	10	14	23	82.1706	Year _n - Year _{n-1} = 191.2850
4	33	58	45	24	273.9792	Year _n - Year _{n-1} = 191.8086
1	45	15	51	25	105.2642	Year _n - Year _{n-1} = 191.2850
4	56	32	56	26	296.5489	Year _n - Year _{n-1} = 191.2847
2	7	50	1	27	127.8336	Year _n - Year _{n-1} = 191.2847
5	19	38	33	28	319.6425	Year _n - Year _{n-1} = 191.8089
					Average:	191.4207

Here we see the median motion of Mars over 28 years. This is the general motion of Mars on its deferent. Recall that the deferent is the circle that carries the epicycles of Mars. It "ferries" all the Martian geometrical apparatus. The modern analysis converts all the sexagesimal numbers to modern decimal degrees, finds the angular motion per year, and then averages this angular motion.

Mars' average orbital velocity on the deferent is ca. 191.42° per year. Using the Rule of 3 you can figure out how many years for a full orbit, its orbital period.

$$\frac{191.42^\circ}{1 \text{ year}} = \frac{360^\circ}{x} \rightarrow x \cong 1.881 \text{ years} \rightarrow 1.881(365.25) \cong 687 \text{ days.}$$

The modern measurement for the period for Mars' orbit around the sun is... you guessed it... 687 days. Medieval astronomy was pretty accurate.



In this chart the earth is in the center and the location of Mars is indicated by year: 1st year, 2nd year, 3rd year, etc. This is where Mars will be within the zodiac on a yearly basis over a span of 28 years. The radial distance of Mars is not accurately indicated in this chart. The numbers spiral out so that their angular pattern can be seen and so that the numbers don't have to be written on top of each other.

A similar analysis will be assigned for 13a.