

ASTRONOMICAL EPHEMERIS
of
Geocentric Places of Planets
for
1949

With Tables of Houses for
MADRAS AND BOMBAY.



Indian Standard Time Observed Throughout.

Published by
Shree Jiwaji Observatory, Ujjain,
with the sanction of Education Department,
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PREFACE.

A special feature of our present publication is the addition of a few pages on the Daily Motions of the Planets. It was at first thought necessary to give Right Ascensions and Declinations of the Planets for each day of the year, but this could not be done without deleting certain other matter from the text. In order to make room for these important Co-ordinates, certain recurring matter such as Tables of Houses, Position of M. C., Logarithmic Tables, etc., will have to be published separately. This idea is now under the careful consideration of my Department.

The positions of the major planets were computed from Newcomb's Tables while the places of the Sun and the minor planets were calculated directly from their respective elements. Half-day positions of the Moon were computed from Brown's Tables. Certain corrections were applied to the Sun's longitude in order to make its positions as accurate as possible.

I take this opportunity to express my thanks to my fellow workers, viz., Messers. Purshottam Joshi, Tej Kiran Sharma, P. S. Karkhanis, S. C. Vyas and others for their whole-hearted co-operation. Thanks are also due to Mr. A. K. Shirke and his staff for expediting this work through the Press.

D. K. BELEKAR,
Offg. Superintendent,
S. J. Observatory,
Ujjain.

Mean Places of Principal Stars on 1st January 1948.

Names.	Stars.	Mag	R. A.	Decl.	Long.	Lat.
			H. M.	° ' "	° ' "	° ' "
♄ Andromeda	U. Bhadra	2.1	0 6	+ 28 47	13 33	+ 25 41
γ Pegasi ..	U. Bhadra	2.8	0 10	+ 14 53	8 26	+ 12 36
ξ Piscium ..	Revati.	5.6	1 11	+ 7 17	19 9	- 0 13
♌ Eridani ..	Achernar.	0.6	1 36	- 57 31	344 35	- 59 23
Polaris ..	Dhruva.	2.1	1 45	+ 89 0	87 51	+ 66 6
β Arietes ..	Ashvini.	2.7	1 52	+ 20 32	33 15	+ 8 29
♌ Arietes ..	Ashvini.	2.2	2 4	+ 23 12	36 57	+ 9 58
4i Arietes ..	Bharani.	3.7	2 47	+ 27 2	47 29	+ 10 27
β Persei ..	Algol'	Var	3 5	+ 40 45	45 27	+ 22 25
η Tauri ..	Krittika.	3.0	3 44	+ 23 56	59 16	+ 4 3
♌ Tauri ..	Rohini.	1.1	4 33	+ 16 24	69 4	- 5 28
β Orionis ..	Rigel'	0.3	5 12	- 8 16	76 7	- 31 8
♌ Aurigee ..	Capella.	0.2	5 13	+ 45 57	81 8	+ 22 52
γ Orionis ..	Bellatrix.	1.7	5 22	+ 6 18	80 14	- 16 49
♌ Orionis ..	Mrigashirsh	4.5	5 32	+ 9 27	82 53	- 13 50
♌ Orionis ..	Mrig Bana	1.7	5 33	- 1 14	82 45	- 24 31
♌ Orionis ..	Ardra.	0.9	5 52	+ 7 24	88 2	- 16 2
♌ Carinae ..	Agastya.	0.9	6 23	- 52 40	104 15	- 75 50
♌ Canis Majori	Vyadha	1.6	6 43	- 16 38	103 22	- 39 36
♌ Geminorum	Castor'	2.0	7 31	+ 32 1	109 31	+ 10 5
♌ Canis Minor	Prashva.	0.5	7 36	+ 5 22	115 5	- 16 0
β Geminorum	Punarvasu	1.2	7 42	+ 28 10	112 31	+ 6 41
♌ Cancri ..	Pushya.	4.1	8 42	+ 18 21	127 60	+ 0 4
♌ Cancri ..	Aslesha.	4.3	8 55	+ 12 4	132 55	- 5 5
♌ Leonis ..	Magha.	1.3	10 5	+ 12 4	149 7	+ 0 27
♌ Leonis ..	Purva.	2.6	11 11	+ 20 49	160 36	+ 14 20
β Leonis ..	Uttara.	2.2	11 46	+ 14 53	170 54	+ 12 16
♌ Corvi ..	Hasta.	3.1	12 27	- 16 12	192 44	- 12 11
♌ Virginis ..	Chitra	1.2	13 22	- 10 52	203 7	- 2 3
♌ Bootes ..	Swati.	0.2	14 13	+ 19 28	203 31	+ 30 46
♌ Libra ..	Vishakaha	2.9	14 48	- 15 49	224 22	+ 0 20
♌ Scorpis ..	Anuradha.	2.5	15 57	- 22 28	241 51	- 1 59
♌ Scorpis ..	Jyeshtha.	1.2	16 26	- 26 19	249 3	- 4 34
♌ Scorpis ..	Mool.	1.7	17 30	- 37 4	263 52	- 13 47
♌ Sagittarus ..	P. Shadha.	2.8	18 17	- 29 51	273 52	- 6 28
♌ Sagittarus ..	P. Shadha.	1.9	18 21	- 34 25	274 22	- 11 2
♌ Sagittarus ..	U. Shadha.	2.1	18 52	- 26 22	281 40	- 3 26
♌ Lyrae ..	Abujit.	0.1	18 35	+ 38 44	284 36	+ 61 44
♌ Aquillae ..	Shravana	0.9	19 48	+ 8 43	301 3	+ 29 18
β Delphini ..	Dhanistha	3.7	20 35	+ 14 24	315 37	+ 31 55
♌ Delphini ..	Dhanistha	3.8	20 37	+ 15 43	316 40	+ 33 2
♌ Cygni ..	Deneb.	1.3	20 40	+ 45 5	334 37	+ 59 55
♌ Aquarii ..	Shatabhij.	3.8	22 50	- 7 52	340 51	- 0 23
♌ Piscis Astr.	Fomalhaut	1.3	22 55	- 29 55	333 8	- 21 8
β Pegasi ..	P. Bhadra	2.6	23 1	+ 27 47	358 39	+ 31 8
♌ Pegasi ..	P. Bhadra	2.6	23 2	+ 14 55	352 46	+ 19 24

EPHEMERIS

OF

Planets' Places for 1948.

INTRODUCTION.

THE places of the Sun, Moon and the Planets given in the following pages are *Sayan* and are true for the mean equinox of 1949. They are given for 12 o'clock noon Indian Standard Time (I.S.T.) which is 5½ hours in advance of Greenwich Mean Time, but, for convenience, the *Sidereal Time* is given for the *Mean Noon, Ujjain Local Time*.

Nirayana places are obtained by subtracting the *Ayanam shas* from the *Sayan* places.

It should be noted that the *Tithis* are the same both in the *Sayan* and the *Nirayana* systems.

EXPLANATION OF SYMBOLS.

Planets.	Signs.	Aspects.
☉ Sun.	♈ Aries.	♌ Conjunction = 0°
☾ Moon.	♉ Taurus.	♊ Semi-Sextile = 30°
♇ Pluto.	♊ Gemini.	♌ Semi-Quintile = 36°
♆ Neptune.	♋ Cancer.	♌ Semi-Square = 45°
♅ Herschel (Uranus).	♌ Leo.	* Sextile = 60°
♄ Saturn.	♍ Virgo.	♊ Quintile = 72°
♃ Jupiter.	♎ Libra.	♌ Square = 90°
♂ Mars.	♏ Scorpio.	♌ Trine = 120°
♀ Venus.	♐ Sagittarus.	♌ Sesqui-quadrate = 135°
☿ Mercury.	♑ Capricornus.	♌ Bi-quintile = 144°
♁ Earth.	♒ Aquarius.	♌ Quincunx = 150°
♃ Rahu.	♓ Pisces.	♌ Opposition = 180°

Main table with columns: Date, Day, Sidereal Time (H, M, S), Longitude (Long.), Declination (Decl.), and various astronomical data for the month of April 1949. Includes dates from 1F to 30S.

Ephemeris table with columns: Date, Longitudes (♈, ♉, ♊, ♋, ♌, ♍), Lunar Aspects (☉, ☽, ☾, ☿, ♀, ♁, ♃, ♄, ♅, ♆, ♇, ♈), and Phenomena. Includes dates from 1 to 30.

Table with columns: Date, Lat., Decl., Mean ♅, Date, Time, and Phenomena. Lists specific astronomical events like Full Moon, New Moon, and planetary positions.

Table with columns: Date, Day, Sidereal Time, Long., Decl., D, Midnight, Psi. Rows 1-30.

Table with columns: Date, Lat., Decl., Psi. Rows 2-30.

EPHEMERIS.

Table with columns: Date, Longitudes, Lunar Aspects. Rows 1-30.

Table with columns: Date, Lat., Decl., Mean, Time, Phenomena. Rows 2-30.

Table of astronomical data for September 1949, page 18. Columns include Date, Day, Sidereal Time, Longitude, Declination, and Midnight.

Table of astronomical data for September 1949, page 18 (continued). Columns include Date, Latitude, Declination, and other coordinates.

Table titled 'EPHEMERIS. SEPTEMBER, 1949. 19'. Columns include Date, Longitudes (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto), and Lunar Aspects.

Table of astronomical data for September 1949, page 19. Columns include Date, Latitude, Declination, Mean, and Phenomena (e.g., Full Mn., at Perigee).

28 Geocentric position of Pluto and Mean Longitudes of the Sun and the Moon in 1949.

Month and Date.	Pluto.			Sun.			Moon.			
	Long.	Lat.	Decl.	Mean Long.	Mean Long.	Hor. Par.	Semi-Dia.			
Jan.	1 16 Ω 5	7N 45	23N 24	280 35 13	298 34 1	55.6	15.1			
	11 15 R53	47	29	290 26 36	70 19 51	56.9	15.5			
	21 40	49	34	300 18 0	202 5 42	58.6	16.0			
	31 27	50	40	310 9 23	333 51 32	54.3	14.8			
Feb.	10 12	51	46	320 0 46	105 37 23	59.3	16.1			
	20 0	51	50	329 52 9	237 23 13	57.1	15.6			
March	2 14 52	51	54	339 43 33	9 9 3	54.0	14.7			
	12 36	50	57	349 34 56	140 54 54	60.4	16.5			
	22 23	50 24	0	359 26 20	272 40 44	56.2	15.3			
April	1 18	48	1	9 17 43	44 26 35	54.5	14.8			
	11 10	48	2	19 9 8	176 12 25	61.0	16.6			
	21 10	46	3	29 0 32	307 58 15	54.9	15.0			
May	1 7	45	4	38 51 56	79 44 6	55.9	15.2			
	11 D 13	43	0	48 43 18	211 29 56	60.4	16.5			
	21 15	41 23	54	58 34 41	343 15 47	54.1	14.8			
	31 25	40	51	68 26 4	115 1 37	57.6	15.7			
June	10 33	39	47	78 17 26	246 47 27	59.1	16.1			
	20 47	39	42	88 8 48	378 33 18	54.1	14.8			
	30 15 0	38	37	98 0 11	150 19 8	59.0	16.1			
July	10 16	38	32	107 51 34	282 4 59	57.3	15.6			
	20 33	38	27	117 42 56	53 50 49	55.0	15.0			
	30 50	38	22	127 34 20	185 36 39	60.0	16.2			
August	9 16 9	39	17	137 25 42	317 22 30	55.6	15.1			
	19 26	40	12	148 16 15	89 8 20	56.5	15.4			
	29 45	41	6	157 8 30	220 54 11	59.3	16.1			
Sep.	8 17 0	42	3	166 59 53	352 40 1	54.3	14.8			
	18 18	44	0	176 51 16	124 25 51	58.3	15.9			
	28 30	46 22	58	186 42 40	256 11 42	58.1	15.8			
Oct.	8 48	48	55	196 34 3	27 57 32	54.0	14.7			
	18 53	51	56	206 25 28	159 43 23	59.6	16.2			
	28 18 2	54	56	216 16 50	291 29 13	56.6	15.5			
Nov.	7 4	57	58	226 8 13	63 15 3	54.7	14.9			
	17 8 9 8	0	59	235 59 36	195 0 54	60.4	16.4			
	27 R 6	3 23	3	245 51 0	326 46 44	55.1	15.0			
Dec.	7 5	5	6	255 42 23	98 32 35	56.1	15.3			
	17 17 57	8	11	265 33 46	230 18 25	60.2	16.4			
	27 49	11	16	275 25 10	2 4 15	54.2	14.8			
	31 45	12	18	279 21 44	54 46 35	54.6	14.9			

Ending Moments of Tithis for each date in 1949

(calculated in I. S. T.)

Date.	January.		February.		March.		April.		May.		June.	
	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.
1	2	16 45	3	14 36	1	4 59	2	1 36	3	17 25	4	2 41
2	3	20 15	4	17 14	2	7 41	3	3 39	4	17 47	5	1 29
3	4	20 25	5	22 13	3	10 40	4	5 18	5	17 36	6	23 49
4	5	22 44	6	22 34	4	12 53	5	6 26	6	16 58	7	21 58
5	6	..	7	..	5	15 8	6	6 59	7	15 48	8	19 57
6	6	1 27	7	0 47	6	16 52	7	6 49	8	14 8	9	17 39
7	7	4 50	8	2 17	7	17 56	8	5 59	9	12 5	10	15 16
8	8	6 38	9	2 50	8	18 21	9	3 4	10	9 35	11	12 43
9	9	8 23	10	2 43	9	17 44	10	2 12	11	6 48	12	11 4
10	10	9 35	11	1 38	10	16 25	11	23 39	12	2 1	13	7 40
11	11	9 59	12	23 51	11	12 21	12	20 29	13	0 31	14	5 17
12	12	9 23	13	23 13	12	11 21	13	16 59	14	21 21	15	3 10
13	13	8 5	14	18 9	13	13 46	14	13 46	15	18 24	16	1 32
14	14	6 20	15	14 38	14	8 2	15	9 41	16	15 39	17	0 24
15	15	3 30	16	11 0	15	4 22	16	6 14	17	13 20	18	0 0
16	16	0 42	17	7 23	16	0 34	17	3 2	18	11 35	19	0 4
17	17	21 30	18	3 58	17	23 27	18	0 20	19	10 30	20	1 2
18	18	18 22	19	0 52	18	17 11	19	22 8	20	21 35	21	2 40
19	19	15 25	20	22 12	19	13 49	20	21 35	21	10 18	22	4 48
20	20	12 42	21	20 5	20	8 58	21	20 14	22	12 2	23	7 16
21	21	10 22	22	18 38	22	18 38	23	20 15	24	12 6	25	9 48
22	22	8 25	23	17 51	23	17 51	24	21 34	25	16 16	26	12 8
23	23	6 59	24	17 39	24	6 48	25	20 53	26	16 16	27	12 8
24	24	5 57	25	18 1	25	0 34	26	18 48	27	18 48	28	14 28
25	25	5 22	26	18 57	26	23 27	27	18 24	28	18 24	29	16 7
26	26	5 10	27	20 15	27	17 11	28	15 39	29	15 39	30	17 8
27	27	5 21	28	22 0	28	17 11	29	13 20	30	13 20		18 0
28	28	5 55	29	0 4	29	17 11	30	11 35		11 35		19 0
29	29	6 55	30	2 26	30	15 30		9 4		9 4		20 0
30	30	8 15		..		13 3		4 4		4 4		21 0
31	31	10 2		..		15 19		27		27		22 0
		12 9		..		16 36		30		30		23 0
				..		23 16		31		31		24 0
				..		..						25 0
				..		..						26 0
				..		..						27 0
				..		..						28 0
				..		..						29 0
				..		..						30 0
				..		..						31 0

Ending Moments of Tithis for each date in 1949
(calculated in I. S. T.)—(concl.).

Date	July.		August.		September.		October.		November.		December.	
	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.	Ti.	Time.
1		H. M.		H. M.		H. M.		H. M.		H. M.		H. M.
1	5	7 1	7	7 30	9	11 10	10	22 12	11	16 12	11	12 4
2	6	4 53	8	5 32	10	10 43	11	23 27	12	18 48	12	15 6
3	7	2 41	9	3 52	11	10 47	12	..	13	21 33	13	17 12
4	8	0 33	10	2 32	12	11 16	12	1 18	14	..	14	19 14
	9	22 28										
5	10	20 22	11	1 29	13	12 17	13	3 27	14	0 11	15	20 46
6	11	18 33	12	0 47	14	13 42	14	5 49	15	2 43	16	21 54
7	12	16 50	13	0 26	15	15 31	15	8 22	16	4 59	17	22 32
8	13	15 15	14	0 33	16	17 41	16	11 4	17	6 53	18	22 51
9	14	14 0	15	1 8	17	20 5	17	13 40	18	8 24	19	22 42
10	15	13 12	16	2 9	18	22 42	18	16 9	19	9 27	20	22 15
11	16	12 51	17	3 42	19	..	19	18 16	20	10 7	21	21 23
12	17	13 7	18	3 30	19	1 27	20	19 59	21	10 12	22	20 5
13	18	14 4	19	8 5	20	3 54	21	21 12	22	9 45	23	18 30
14	19	15 29	20	10 40	21	5 58	22	21 40	23	8 44	24	16 29
15	20	17 21	21	13 16	22	7 29	23	21 33	24	7 0	25	14 10
16	21	19 46	22	15 32	23	8 18	24	20 38	25	4 50	26	11 33
17	22	22 27	23	17 22	24	8 9	25	19 8	26	2 17	27	8 46
18	23	..	24	18 35	25	7 31	26	16 29	27	23 19	28	5 55
19	23	0 44	25	20 56	26	5 51	27	13 35	28	19 56	29	3 5
20	24	2 48	26	18 23	27	3 35	28	10 12	29	16 27	30	0 27
21	25	4 7	27	16 54	28	0 44	29	6 36	30	13 0	30	1 22 3
22	26	5	28	15 5	29	21 23					1	9 29
23	27	5 5	29	12 29	30	17 51	30	2 53	1	9 29	2	19 16
24	28	4 23	30	9 31	1	14 8	2	19 37	3	4 33	4	18 53
25	29	3 3	1	6 18	2	10 35	3	16 33	4	2 52	5	19 24
26	30	1 3	2	2 5	3	7 11	4	13 56	5	1 59	6	20 44
27	1 22 49		3	23 35	4	4 9	5	12 6	6	1 58	7	22 43
28	2 20 12		4	20 35	5	1 34	6	10 52	7	2 51	8	..
29	3 17 27		5	19 37	6	23 43	7	10 28	8	4 28	9	1 24
30	4 14 42		6	15 27	7	22 6	8	10 54	9	6 41	10	6 20
31	5 12 5		7	13 32	8	21 35	9	12 8	10	9 18	11	6 47
	6 9 40		8	12 8	9	21 24	10	13 54	11	..	12	9 10

Time when the Moon enters the Zodiacal signs in 1949. 31

January.		February.		March.		April.		May.		June.	
Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.	Sign.	Date.	Time.
		H. M.			H. M.			H. M.			H. M.
♈	1	7 40	♉	2	14 34	♊	1	21 6	♋	3	3 32
♈	3	18 31	♉	5	3 27	♊	4	10 3	♋	5	12 40
♈	6	7 7	♉	7	14 7	♊	6	21 54	♋	7	18 27
♈	8	19 34	♉	9	20 47	♊	9	5 48	♋	9	20 59
♈	11	4 59	♉	11	23 30	♊	11	10 2	♋	11	21 18
♈	13	10 26	♉	13	23 35	♊	13	10 54	♋	13	20 57
♈	15	12 37	♉	15	23 14	♊	15	10 50	♋	15	21 53
♈	17	13 22	♉	17	18 0	♊	17	9 56	♋	17	17 51
♈	19	14 33	♉	20	4 21	♊	19	12 2	♋	20	9 34
♈	21	17 30	♉	22	11 20	♊	21	17 38	♋	22	20 40
♈	23	22 40	♉	24	20 57	♊	24	2 41	♋	25	9 32
♈	26	5 53	♉	26	14 23	♊	26	14 23	♋	25	5 12
♈	28	14 58	♉	27	8 25	♊	29	15 11	♋	27	22 11
♈	31	1 56	♉	28	15 59	♊	31	15 59	♋	30	9 17

July.		August.		September.		October.		November.		December.	
♈	2	18 51	♉	1	3 15	♊	1	17 36	♋	1	6 45
♈	4	21 52	♉	3	6 55	♊	4	1 10	♋	3	16 51
♈	7	1 14	♉	5	12 5	♊	6	10 57	♋	6	4 57
♈	9	5 32	♉	7	19 6	♊	8	22 45	♋	8	17 58
♈	11	11 40	♉	10	4 16	♊	11	11 44	♋	11	6 33
♈	13	20 38	♉	12	15 51	♊	14	0 18	♋	13	17 19
♈	16	8 13	♉	15	4 28	♊	16	10 22	♋	16	1 1
♈	18	21 6	♉	17	16 51	♊	18	16 33	♋	18	16 48
♈	21	8 27	♉	20	1 44	♊	20	20 40	♋	20	6 15
♈	23	16 21	♉	22	6 37	♊	22	19 10	♋	22	5 49
♈	25	20 47	♉	24	8 26	♊	24	18 51	♋	24	5 39
♈	27	23 7	♉	26	8 52	♊	26	19 53	♋	26	5 44
♈	30	0 48	♉	28	10 49	♊	28	23 42	♋	28	13 21
			♉	30	12 29	♊	30	22 51	♋	30	22 51

Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.
January.				March.				May.			
	H.	M.	°	H.	M.	°		H.	M.	°	
2	D	14	51	2	47			2	D	14	25
4	D	6	18	2	16			4	D	3	57
7	D	13	55	0	13			7	D	1	27
13	D	6	17	3	43			10	D	3	33
	D	8	8	4	3			11	D	1	56
14	D	9	14	4	38			12	D	10	9
15	D	3	28	4	40			13	D	7	52
16	D	2	59	2	28			14	D	12	56
	D	14	3	3	31			15	D	9	55
	D	14	18	2	26			16	D	10	7
17	D	16	20	7	1			17	D	0	34
	D	21	59	2	17			18	D	8	28
20	D	16	5	0	12			19	D	1	50
24	D	18	22	6	30			20	D	8	52
26	D	0	36	3	50			21	D	11	25
27	D	12	53	4	45			22	D	6	59
	D	15	0	4	40			23	D	15	2
	D	5	54	5	27			24	D	10	37
	D	8	13	4	41			25	D	9	59
	D	21	10	2	56			26	D	14	57
30	D	1	51	7	10			27	D	20	34
31	D	10	51	2	10			28	D	1	53
								29	D	22	21
								30	D	2	26
								31	D	23	0
February.				April.				June.			
	H.	M.	°	H.	M.	°		H.	M.	°	
1	D	12	0	10	37			1	D	6	5
3	D	21	19	0	26			2	D	7	26
4	D	12	47	7	25			3	D	16	47
9	D	15	3	3	45			4	D	3	24
11	D	6	25	4	44			6	D	10	31
12	D	7	46	7	25			7	D	13	3
	D	11	25	5	4			9	D	17	15
	D	23	58	3	3			10	D	10	31
13	D	14	38	2	51			11	D	3	17
14	D	2	13	2	54			12	D	7	7
	D	5	0	2	5			14	D	5	21
16	D	2	29	0	43			15	D	6	27
	D	23	24	0	19			16	D	14	21
18	D	15	28	6	33			17	D	1	29
21	D	23	27	1	39			18	D	18	33
22	D	4	58	4	2			19	D	19	3
24	D	6	4	4	39			20	D	23	40
25	D	16	2	5	0			21	D	9	17
26	D	23	18	3	3			22	D	15	31
27	D	13	8	2	11			23	D	0	27
28	D	2	25	1	51			24	D	3	55
	D	10	34	2	21			25	D	14	17
								26	D	19	45
								27	D	19	45
								28	D	19	45
								29	D	19	45
								30	D	19	45
								31	D	19	45

Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.	Date.	Aspect	Time.	Dis- tance.
July.				September.				November.			
	H.	M.	°	H.	M.	°		H.	M.	°	
1	D	21	22	0	56			1	D	7	43
3	D	15	57	3	13			3	D	19	26
8	D	11	16	3	56			5	D	3	54
9	D	1	50	5	37			6	D	2	41
	D	8	38	4	24			7	D	6	59
10	D	13	13	5	3			8	D	7	55
11	D	8	50	4	40			9	D	18	11
12	D	10	59	2	55			10	D	1	30
	D	16	22	2	59			11	D	16	16
14	D	3	37	1	35			12	D	7	17
	D	20	47	5	49			13	D	19	24
17	D	9	42	0	46			14	D	18	48
	D	13	51	2	29			15	D	11	23
20	D	14	11	0	29			16	D	8	0
23	D	16	36	4	3			17	D	1	1
	D	20	59	4	10			18	D	19	51
	D	23	0	0	59			19	D	19	51
25	D	15	4	4	17			20	D	7	19
	D	22	37	2	15			21	D	4	26
26	D	1	5	4	1			22	D	18	41
	D	23	22	3	11			23	D	18	41
27	D	3	16	1	54			24	D	18	41
	D	13	57	0	16			25	D	18	41
28	D	1	26	2	4			26	D	18	41
	D	7	35	1	3			27	D	18	41
30	D	22	10	0	58			28	D	18	41
31	D	10	9	0	12			29	D	18	41
August.				October.				December.			
	H.	M.	°	H.	M.	°		H.	M.	°	
5	D	17	58	4	29			1	D	3	51
6	D	2	50	4	17			2	D	6	27
7	D	9	53	4	22			3	D	20	43
	D	1	8	4	11			4	D	13	30
9	D	1	26	3	6			5	D	12	6
	D	7	12	7	16			6	D	2	9
10	D	6	36	2	7			7	D	18	3
	D	17	26	1	33			8	D	16	3
13	D	15	52	0	28			9	D	18	3
	D	18	19	1	0			10	D	21	41
21	D	11	52	4	14			11	D	0	38
	D	19	35	4	20			12	D	4	37
23	D	10	24	2	51			13	D	13	48
24	D	21	30	0	41			14	D	4	37
	D	22	10	1	39			15	D	13	48
26	D	3	13	2	49			16	D	4	3
	D	20	45	0	15			17	D	0	25
27	D	3	35	0	20			18	D	9	51
	D	6	43	1	7			19	D	3	8
								20	D	15	47
								21	D	6	50
								22	D	3	8
								23	D	16	7
								24	D	5	47
								25	D	15	47
								26	D	6	48
								27	D	3	10
								28	D	16	7
								29	D	8	11
								30	D	4	29
								31	D	7	0

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
November.			H. M.			December.			H. M.		
1	♄ □ ♃	1 52	18	♄ ⊕ ♃	18 38	1	♄ ♃	6 27	13	♄ ⊕ ♃	23 4
2	♄ ♃	4 25	19	♄ ⊕ ♃	22 14	2	♄ ♃	7 40	14	♄ ♃	0 38
4	♄ ♃	19 16	20	♄ ♃	23 7	3	♄ ♃	7 15	15	♄ ♃	10 8
6	♄ ♃	21 22	21	♄ ♃	5 27	4	♄ ♃	7 7	16	♄ ♃	12 28
7	♄ ♃	23 38	22	♄ ♃	2 8	5	♄ ♃	7 15	17	♄ ♃	15 12
9	♄ ♃	0 50	23	♄ ♃	4 46	6	♄ ♃	8 0	18	♄ ♃	15 4
10	♄ ♃	7 7	24	♄ ♃	12 44	7	♄ ♃	8 12	19	♄ ♃	15 20
11	♄ ♃	5 8	25	♄ ♃	4 33	8	♄ ♃	9 9	20	♄ ♃	15 20
12	♄ ♃	18 11	26	♄ ♃	6 0	9	♄ ♃	10 12	21	♄ ♃	15 26
14	♄ ♃	1 12	27	♄ ♃	8 42	10	♄ ♃	11 7	22	♄ ♃	15 56
15	♄ ♃	12 46	28	♄ ♃	8 0	11	♄ ♃	12 12	23	♄ ♃	16 11
17	♄ ♃	20 0	29	♄ ♃	20 8	12	♄ ♃	13 12	24	♄ ♃	16 11
	♄ ♃	20 5	30	♄ ♃	23 21	13	♄ ♃	14 12	25	♄ ♃	17 47
	♄ ♃	23 45		♄ ♃	6 15	14	♄ ♃	15 22	26	♄ ♃	18 11
	♄ ♃	9 36		♄ ♃	19 32	15	♄ ♃	16 15	27	♄ ♃	18 39
				♄ ♃	2 24	16	♄ ♃	17 53	28	♄ ♃	19 0
				♄ ♃	22 41	17	♄ ♃	18 7	29	♄ ♃	
				♄ ♃	2	18	♄ ♃	19 12	30	♄ ♃	

Heliacal Risings and Settings of the Planets in 1949.
(For the latitude 23°11' N).

Mercury.		Moonrise.	
Sets.	Rises.	Sets.	Rises.
27th Jan. in West.	16 Feb. in East	30th January.	27th July.
20th March in East.	25th April in West	1st March.	25th August.
25th May in West.	17th June in East	31st March	24th September.
15th July in East.	14th Aug. in West	29th April.	23rd October.
20th Sept. in West.	10th Oct. in East	29th May.	21st November.
8th Nov. in East.	8th Dec. in West	27th June.	21st December.

Venus.		Jupiter.	
Sets.	Rises.	Sets.	Rises.
12th March in East.	19th May in West	Rises on 13th January.	

Saturn.		Mars.	
Sets.	Rises.	Sets.	Rises.
2th Aug. 1949.	19th Sept. 1949.	5th January.	9th June.

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
January.			H. M.			H. M.			H. M.		
1	♄ ♃	3 57	20	♄ ♃	23 11	1	♄ ♃	1 24	30	♄ ♃	20 31
2	♄ ♃	6 55	21	♄ ♃	4 19	2	♄ ♃	8 24	31	♄ ♃	21 10
3	♄ ♃	9 9	22	♄ ♃	11 30	3	♄ ♃	13 3		♄ ♃	0 4
4	♄ ♃	17 6	23	♄ ♃	18 33	4	♄ ♃	16 36		♄ ♃	1 51
5	♄ ♃	18 52	24	♄ ♃	20 26	5	♄ ♃	19 37		♄ ♃	7 52
6	♄ ♃	22 47	25	♄ ♃	22 57	6	♄ ♃	21 59		♄ ♃	19 58
7	♄ ♃	24 47	26	♄ ♃	23 0	7	♄ ♃	24 12		♄ ♃	2 12
8	♄ ♃	2 48	27	♄ ♃	5 20	8	♄ ♃	26 53		♄ ♃	4 25
9	♄ ♃	6 2	28	♄ ♃	8 32	9	♄ ♃	29 49		♄ ♃	10 51
10	♄ ♃	9 20	29	♄ ♃	11 17	10	♄ ♃	33 23		♄ ♃	17 18
11	♄ ♃	13 55	30	♄ ♃	14 3						
	♄ ♃	14 53		♄ ♃	17 20						
	♄ ♃	17 20		♄ ♃	1 6						
	♄ ♃	6 17		♄ ♃	4 40						
	♄ ♃	15 9		♄ ♃	8 8						
	♄ ♃	3 22		♄ ♃	11 57						
	♄ ♃	6 42		♄ ♃	21 59						
	♄ ♃	15 7		♄ ♃	22 10						
	♄ ♃	19 48		♄ ♃	4 40						
	♄ ♃	20 21		♄ ♃	10 8						
	♄ ♃	1 5		♄ ♃	12 45						
	♄ ♃	2 28		♄ ♃	14 6						
	♄ ♃	9 32		♄ ♃	14 59						
	♄ ♃	22 53		♄ ♃	16 40						
	♄ ♃	0 41		♄ ♃	6 42						
				♄ ♃	10 11						
				♄ ♃	12 43						
				♄ ♃	15 42						
				♄ ♃	19 12						

February.

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
1	♄ ♃	1 8	1	♄ ♃	13 3	1	♄ ♃	1 24	31	♄ ♃	20 31
2	♄ ♃	8 9	2	♄ ♃	18 3	2	♄ ♃	8 24		♄ ♃	21 10
3	♄ ♃	13 13	3	♄ ♃	20 9	3	♄ ♃	13 3		♄ ♃	0 4
4	♄ ♃	15 17	4	♄ ♃	20 26	4	♄ ♃	16 36		♄ ♃	1 51
5	♄ ♃	17 17	5	♄ ♃	20 56	5	♄ ♃	19 37		♄ ♃	7 52
6	♄ ♃	22 23	6	♄ ♃	21 57	6	♄ ♃	21 59		♄ ♃	19 58
7	♄ ♃	1 15	7	♄ ♃	23 0	7	♄ ♃	24 12		♄ ♃	2 12
8	♄ ♃	8 16	8	♄ ♃	5 20	8	♄ ♃	26 53		♄ ♃	4 25
9	♄ ♃	13 17	9	♄ ♃	8 32	9	♄ ♃	29 49		♄ ♃	10 51
10	♄ ♃	17 17	10	♄ ♃	11 17	10	♄ ♃	33 23		♄ ♃	17 18
11	♄ ♃	22 22	11	♄ ♃	14 3						
12	♄ ♃	0 47	12	♄ ♃	17 20						
13	♄ ♃	4 47	13	♄ ♃	1 6						
14	♄ ♃	8 28	14	♄ ♃	4 40						
15	♄ ♃	11 54	15	♄ ♃	8 8						
16	♄ ♃	15 35	16	♄ ♃	11 57						
17	♄ ♃	19 35	17	♄ ♃	21 59						
18	♄ ♃	23 10	18	♄ ♃	22 10						
19	♄ ♃	4 40	19	♄ ♃	4 40						
20	♄ ♃	8 8	20	♄ ♃	10 8						
21	♄ ♃	11 57	21	♄ ♃	12 45						
22	♄ ♃	21 59	22	♄ ♃	14 6						
23	♄ ♃	22 36	23	♄ ♃	14 59						
24	♄ ♃	6 1	24	♄ ♃	16 40						
25	♄ ♃	9 14	25	♄ ♃	6 42						
26	♄ ♃	12 5	26	♄ ♃	10 11						
27	♄ ♃	12 12	27	♄ ♃	12 43						
28	♄ ♃	20 56	28	♄ ♃	15 42						
29	♄ ♃	3 28	29	♄ ♃	19 12						
30	♄ ♃	8 32	30	♄ ♃	19 12						

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

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
	H.	M.		H.	M.		H.	M.		H.	M.
17	h	16 0	27	o	2 16	5	h	12 29	14	Pl	19 48
	h	17 19		h	16 28	6	h	3 37	15	h	2 50
18	h	4 57		h	18 47		h	10 16		h	2 50
	h	5 46		h	19 23		h	13 11		h	13 36
	h	8 16		h	20 38		h	13 47		h	17 21
	h	9 26	28	h	19 37		h	14 37		h	18 3
	h	9 42		h	20 38		h	15 43		h	19 25
	h	19 16		h	23 17		h	18 33		h	21 6
19	h	0 14		h	1 48		h	15 43		h	19 25
	h	6 12	29	h	3 47		h	18 33		h	21 6
	h	7 10		h	9 59		h	17 25	16	h	3 28
	h	8 16		h	14 57		h	18 7		h	3 22
	h	10 49		h	20 34		h	15 4		h	16 46
	h	15 15	30	h	8 17		h	16 53		h	20 46
20	h	2 15		h	10 34		h	17 40		h	21 56
	h	8 36		h	9 34		h	17 52		h	23 50
	h	12 58	31	h	10 59		h	18 44		h	0 11
21	h	13 17		h	12 53		h	22 25		h	8 24
	h	16 31		h	16 16		h	16 10		h	20 57
	h	17 0		h	20 5		h	18 48		h	21 16
	h	17 17		h	20 32		h	20 5	18	h	0 16
	h	18 46		h	21 56		h	20 27		h	0 50
22	h	18 57		h	1 35	10	h	21 56		h	1 19
	h	16 42		h	4 48		h	19 9	19	h	2 14
	h	20 11		h	19 9		h	20 0		h	3 36
	h	20 33	1	h	20 0		h	20 58		h	3 49
	h	16 36		h	21 45		h	21 45	20	h	4 38
23	h	9 9		h	2 2		h	21 5		h	6 48
	h	11 30		h	4 1	11	h	2 2		h	8 28
	h	11 53		h	6 41		h	4 1		h	10 45
24	h	3 48		h	16 44		h	16 44		h	11 0
	h	5 51		h	19 58		h	19 58		h	11 30
	h	8 53		h	20 42		h	20 42	21	h	9 46
	h	1 40		h	21 7		h	21 7		h	11 30
25	h	4 28		h	18 51		h	19 45		h	13 5
	h	6 20		h	19 45		h	20 27		h	10 37
	h	6 59		h	22 24		h	20 0		h	15 40
	h	12 14		h	23 23		h	7 57		h	17 18
	h	13 33		h	6 28		h	9 22		h	19 24
	h	17 19		h	9 36		h	9 36	22	h	19 24
26	h	7 46		h	16 29		h	16 29		h	16 51
	h	9 45		h	21 16		h	21 8		h	23 33
	h	11 47		h	16 40		h	16 40	23	h	1 17
	h	12 30		h	18 47		h	18 47		h	5 12
	h	15 15		h	21 5		h	21 5	24	h	5 49
	h	21 53		h	11 17		h	18 47		h	5 49

Timings of Lunar Aspects in 1949.—(contd.)

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.		
6	☽	15 6	16	☽	12 34	26	☽	18 17	3	☽	17 13		
	☽	20 53		☽	13 13		☽	23 22		☽	20 61		
	☽	23 31		☽	16 1	27	☽	2 2	4	☽	1 16		
7	☽	4 4	17	☽	9 42		☽	2 2		☽	1 32		
	☽	6 15		☽	11 11		☽	2 40		☽	2 32		
	☽	12 27		☽	15 41		☽	2 17		☽	2 5		
	☽	22 49		☽	22 46		☽	1 1		☽	2 33		
8	☽	1 16		☽	23 12	28	☽	2 26	5	☽	3 42		
	☽	3 32		☽	11 33		☽	2 4		☽	3 42		
	☽	4 0		☽	14 26		☽	2 21		☽	7 16		
	☽	11 16		☽	16 6		☽	6 47		☽	13 58		
	☽	5 5	19	☽	1 45		☽	7 35		☽	17 58		
	☽	1 19		☽	5 22		☽	11 15		☽	23 13		
	☽	3 50		☽	22 23		☽	17 39	6	☽	2 50		
	☽	5 54		☽	22 24	29	☽	20 16		☽	3 46		
	☽	8 38		☽	4 12		☽	1 15		☽	11 20		
	☽	2 2	20	☽	7 54		☽	9 4		☽	11 33		
	☽	3 49		☽	18 0	30	☽	5 39		☽	12 36		
	☽	8 47		☽	3 48		☽	7 46		☽	17 20		
	☽	14 13		☽	4 17		☽	8 32		☽	2 54		
	☽	19 56		☽	5 30		☽	9 46		☽	9 53		
	☽	8 8		☽	13 8		☽	12 6		☽	11 51		
	☽	15 48		☽	16 49		☽	19 30		☽	11 52		
	☽	17 48		☽	23 0		☽	19 30		☽	15 22		
	☽	1 1	22	☽	7 24	31	☽	2 10		☽	19 31		
	☽	1 8		☽	8 27		☽	3 20		☽	0 11		
	☽	10 59		☽	11 13		☽	11 13		☽	1 8		
	☽	13 41		☽	14 2		☽	11 13		☽	1 26		
	☽	16 22		☽	0 41		☽	21 51		☽	17 39		
	☽	19 28		☽	8 15					☽	18 12		
13	☽	1 30		☽	10 37		August.				10	☽	18 12
	☽	7 15		☽	16 36					☽	0 21		
	☽	15 49		☽	16 41					☽	6 36		
	☽	16 33		☽	17 29					☽	11 0		
	☽	3 37		☽	20 59					☽	17 26		
	☽	4 31		☽	14 8					☽	23 13		
	☽	6 26		☽	14 54					☽	4 48		
	☽	6 58		☽	20 10					☽	5 54		
	☽	21 13		☽	3 18					☽	12 14		
	☽	3 37		☽	15 4					☽	16 38		
	☽	17 24		☽	18 30					☽	18 6		
	☽	3 53		☽	22 37					☽	18 23		
	☽	9 10		☽	23 42					☽	23 5		
				☽	1 5					☽	1 28		
				☽	2 23					☽	4 0		
				☽	5 7					☽	4 31		

Timings of Lunar Aspects in 1949.—(contd.)

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

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

October.

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

November.

December.

Timings of Lunar Aspects in 1949.—(concld.)

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
	H.	M.		H.	H.		H.	H.		H.	H.
3	♄	Δ	23	♄	7 24	17	☉	♄	24	♄	♄
4	♄	Δ	15	♄	19 1	17	♄	♄	24	♄	♄
	♄	Δ	20	♄	22 29	18	♄	♄	25	♄	♄
	♄	Δ	20	♄	22 48		♄	♄		♄	♄
5	♄	♄	2	♄	1 20	12	♄	♄	25	♄	♄
	♄	♄	20	♄	3 22		♄	♄		♄	♄
	♄	♄	23	♄	1 30	13	♄	♄	25	♄	♄
	♄	♄	27	♄	2 30		♄	♄		♄	♄
6	♄	♄	2	♄	1 33	19	♄	♄	26	♄	♄
	♄	♄	3	♄	2 34		♄	♄		♄	♄
	♄	♄	6	♄	4 37		♄	♄		♄	♄
	♄	♄	7	♄	7 8		♄	♄		♄	♄
	♄	♄	12	♄	7 19		♄	♄		♄	♄
	♄	♄	13	♄	13 48		♄	♄		♄	♄
7	♄	♄	5	♄	3 43	20	♄	♄	27	♄	♄
	♄	♄	6	♄	5 10		♄	♄		♄	♄
	♄	♄	10	♄	5 45		♄	♄		♄	♄
	♄	♄	12	♄	6 1		♄	♄		♄	♄
	♄	♄	10	♄	10 8		♄	♄		♄	♄
	♄	♄	12	♄	4 3	21	♄	♄	28	♄	♄
	♄	♄	14	♄	7 18		♄	♄		♄	♄
	♄	♄	14	♄	7 19		♄	♄		♄	♄
	♄	♄	22	♄	7 47		♄	♄		♄	♄
	♄	♄	5	♄	14 9	22	♄	♄	29	♄	♄
	♄	♄	16	♄	18 10		♄	♄		♄	♄
	♄	♄	18	♄	8 45		♄	♄		♄	♄
	♄	♄	19	♄	13 59		♄	♄		♄	♄
	♄	♄	20	♄	8 45		♄	♄		♄	♄
	♄	♄	22	♄	15 15	23	♄	♄	30	♄	♄
	♄	♄	22	♄	16 53		♄	♄		♄	♄
	♄	♄	12	♄	19 47		♄	♄		♄	♄
	♄	♄	3	♄	5 50		♄	♄		♄	♄
	♄	♄	19	♄	7 56		♄	♄		♄	♄
	♄	♄	21	♄	8 54		♄	♄		♄	♄
	♄	♄	22	♄	9 28		♄	♄		♄	♄
	♄	♄	23	♄	17 33		♄	♄		♄	♄

The "Parallel" Aspects of Planets in 1949.

Date.	Aspect	Time.	Date.	Aspect	Time.	Date.	Aspect	Time.
January.			May.			September.		
		H. M.			H. M.			H. M.
1	☉	6 0	6	♄	1 5	2	♄	16 1
2	♄	0 43	9	♄	23 48	5	♄	1 22
	♄	1 31	13	♄	20 20	7	♄	0 7
4	♄	2 24	20	♄	19 23	9	♄	6 45
	♄	17 20	26	♄	2 37	12	♄	16 48
6	♄	1 50	31	♄	6 0	13	♄	0 31
7	♄	7 12				28	♄	21 10
11	♄	2 43						
26	♄	4 48						
February.			June.			October.		
		H. M.			H. M.			H. M.
5	♄	18 37	3	♄	10 14	4	☉	21 23
17	☉	15 7	5	♄	17 47	5	♄	21 18
18	♄	7 52	10	♄	18 0	6	♄	9 21
			21	♄	5 17	11	♄	7 4
			22	♄	15 0	13	☉	12 50
			28	♄	5 0	15	♄	22 30
						27	☉	22 26
March.			July.			November.		
		H. M.			H. M.			H. M.
3	♄	4 35	3	♄	15 25	5	♄	16 19
5	☉	9 19	5	♄	16 48	20	♄	7 52
10	☉	11 0	14	♄	8 35	23	♄	4 37
15	♄	17 46	18	♄	21 36	26	☉	1 0
21	♄	1 28	26	♄	5 44	30	♄	18 40
31	♄	14 58	30	♄	22 27			
April.			August.			December.		
		H. M.			H. M.			H. M.
1	♄	4 58	8	♄	20 0	1	♄	12 0
6	♄	11 18	12	♄	20 49	2	♄	0 38
	♄	5 2	14	♄	22 50	7	♄	11 7
	♄	6 47	19	♄	22 16	13	♄	2 24
8	♄	7 42	21	♄	21 16	15	♄	19 7
14	♄	10 55	25	♄	9 31	26	♄	23 17
19	♄	2 3	30	♄	5 10			
23	☉	6 24						
29	☉	3 46						
	♄	5 0						

Month and Date.	ζ			ε			φ			ψ		
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
	°	'	''	°	'	''	°	'	''	°	'	''
January	10 28	05	1	9 22	1 S 49	1.3938	8 m 48	2 N 3	.7231	20 22	8	.4083
5	11	48	1	11 32	50	1.3916	15 13	1 44	.7237	5 27	40	.3864
9	11	27	2	13 14	51	1.3896	21 36	1 24	.7242	22 38	5 45	.3632
13	12	47	3	15 33	51	1.3878	28 0	1 3	.7247	12 2	4 6	.3409
17	12	27	3	17 19	51	1.3863	4 23	0 41	.7253	3 51	1 41	.3223
21	12	7	3	19 4	51	1.3849	10 45	19	.7257	27 47	1 N 14	.3103
25	12	27	3	21 35	51	1.3838	17 6	0 S 3	.7262	22 55	4 3	.3079
29	12	47	4	24 7	50	1.3829	23 28	26	.7266	17 47	6 4	.3153
February	13	7	4	26 39	49	1.3823	29 49	48	.7270	10 59	57	.3311
6	14	27	5	1 11	48	1.3819	0 9	9	.7273	1 45	47	.3520
10	14	47	5	4 15	47	1.3817	12 29	30	.7276	20 2	5 55	.3649
14	14	7	6	6 48	46	1.3817	18 49	50	.7278	6 4	40	.3981
18	14	27	6	9 20	44	1.3820	25 8	2	.7281	20 31	13	.4185
22	15	48	7	11 52	43	1.3824	1 28	25	.7282	3 35	1 43	.4360
26	15	8	7	14 24	40	1.3832	7 47	39	.7282	15 43	0 15	.4500
March	28	28	8	16 56	38	1.3842	14 6	52	.7282	27 12	1 S 10	.4599
6	16	48	8	19 28	36	1.3853	20 26	3	.7282	8 20	2 29	.4654
10	16	8	8	21 59	33	1.3867	26 45	52	.7281	19 19	3 41	.4666
14	17	28	9	24 30	31	1.3883	3 3	5	.7278	0 24	4 45	.4631
18	17	48	9	27 1	28	1.3902	9 25	22	.7276	11 46	5 41	.4554
22	17	8	10	29 31	24	1.3922	15 45	23	.7273	23 41	6 23	.4438

Heliocentric Places of Planets at Noon I. S. T. in 1949.

Month and Date.	ζ			ε			φ			ψ		
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
	°	'	''	°	'	''	°	'	''	°	'	''
March	17 29	0 S 10	1	2 1	1 S 21	1.3945	22 2	5 S 22	.7270	6 25	6 S 52	.4274
30	18	49	11	4 30	18	1.3970	28 26	19	.7266	20 15	7 0	.4081
April	18	9	11	6 59	15	1.3996	4 47	13	.7262	5 34	6 40	.3863
7	19	29	12	9 27	11	1.4025	11 9	4	.7257	22 46	5 44	.3631
11	19	49	12	11 55	7	1.4055	17 31	2	.7252	12 12	4 5	.3408
15	19	10	13	14 21	3	1.4086	23 54	4	.7247	4 8	1 1 40	.3231
19	20	30	13	16 47	1	1.4121	0 8 17	25	.7242	28 7	1 N 16	.3103
23	20	50	14	19 13	0	1.4156	6 41	9	.7237	23 6	4 5	.3079
27	20	10	14	21 37	51	1.4194	13 6	1	.7231	17 58	6 5	.3154
May	31	31	14	24 1	47	1.4232	19 31	31	.7226	11 4	9 57	.3312
5	21	51	15	26 24	43	1.4272	25 57	10	.7220	1 55	47	.3522
9	21	11	15	28 47	39	1.4314	2 23	0	.7214	20 10	5 55	.3752
13	22	32	16	1 8	34	1.4357	8 50	26	.7210	6 16	4 39	.3979
17	22	52	16	3 29	30	1.4401	15 17	3	.7205	20 37	4 12	.4186
21	22	12	17	5 19	26	1.4447	21 45	0 N 20	.7201	3 m 39	1 43	.4362
25	22	32	17	8 7	21	1.4493	28 13	42	.7197	15 48	0 15	.4501
29	23	53	18	10 25	17	1.4539	4 42	1	.7193	27 17	1 S 10	.4599
June	23	13	18	12 43	12	1.4587	11 10	26	.7190	8 24	2 29	.4655
6	24	34	19	14 59	8	1.4635	17 40	46	.7187	19 25	3 41	.4665
10	24	54	19	17 14	4	1.4685	24 9	2	.7185	0 29	4 46	.4631
14	24	14	20	19 29	0 N 1	1.4735	0 39	23	.7184	11 52	5 41	.4553
18	24	35	20	21 42	5	1.4785	7 8	38	.7184	23 47	6 24	.4433
22	24	55	20	23 54	9	1.4835	13 38	51	.7184	6 31	52	.4279

Heliocentric Places of Planets at Noon I. S. T. in 1949.

Month and Date.	♃			♄			♅			♆					
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
June	25 ^v 15	0 S 21	5.1344	26 ^v 6	0 N 13	1.4887	20 ^a 8	3 N 3'	.7184	20 ^a 22	7 S 0	.4079	20 ^a 3	6 90	.3865
July	26	..	5.1329	28 17	18	1.939	26 38		.7185	5 ^x 3					
	4	..	5.1315	0 ^π 27	22	1.4990	3 ^π 6	18	.7187	22 55	5 44	.3629			
	8	..	5.1300	2 36	26	1.5041	9 36	22	.7190	12 ^r 22	4 4	.3406			
	12	..	5.1285	4 44	30	1.5093	16 5	73	.7193	4 ^v 12	1 39	.3220			
	16	..	5.1271	6 51	34	1.5147	22 35	22	.7196	28 10	1 N 16	.3102			
	20	..	5.1257	8 57	38	1.5199	29 3	18	.7200	23 ^π 18	4 5	.3079			
	24	..	5.1243	11 3	41	1.5251	5 ^a 32	12	.7204	18 ^π 9	6 6	.3156			
	28	..	5.1229	13 7	45	1.5303	12 0	3	.7209	11 ^π 20	57	.3313			
August	1	..	5.1215	15 11	49	1.5355	18 27	2 52	.7214	2 ^π 4	47	.3523			
	5	..	5.1201	17 14	52	1.5406	24 53	39	.7219	20 19	5 54	.3753			
	9	..	5.1187	19 16	56	1.5457	1 ^π 19	23	.7224	6 ^a 24	4 38	.3981			
	13	..	5.1174	21 17	59	1.5507	7 44	6	.7230	20 44	3 11	.4187			
	17	..	5.1160	22 18	1 N 2	1.5557	14 9	1 48	.7235	4 ^m 0	1 40	.4363			
	21	..	5.1146	24 18	5	1.5606	20 32	28	.7241	15 54	0 14	.4503			
	25	..	5.1133	26 17	9	1.5656	26 55	7	.7246	27 30	0 S 12	.4600			
	29	..	5.1119	28 16	12	1.5703	3 ^r 18	45	.7252	8 ^r 30	2 30	.4655			
September	2	..	5.1105	0 ^π 13	0 14	1.5750	9 39	0 23	.7257	19 30	3 42	.4666			
	6	..	5.1092	2 11	17	1.5796	16 0	0	.7262	0 ^v 34	4 46	.4631			
	10	..	5.1078	4 7	20	1.5842	22 21	0 S 11	.7266	11 57	5 48	.4553			
	14	..	5.1064	6 3	22	1.5887	28 41	33	.7270	23 52	6 23	.4431			
	18	..	5.1050	7 58	25	1.5930	5 ^v 1	55	.7273	6 ^π 37	52	.4279			
	22	..	5.1037	10 50	1	1.5973	11 21	1 27	.7276	20 28	7 0	.4078			
	26	..	5.1023	12 44	30	1.6015	17 40	46	.7278	5 ^x 50	6 39	.3858			

Heliocentric Places of Planets at noon I. S. T. in 1949.

Month and Date.	♃			♄			♅			♆					
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
September	3 ^π 29	0 S 31	5.1009	14 ^π 37	1 N 32	1.6057	24 ^v 0	2 S 5	.7280	23 ^x 3	5 S 43	.3627			
October	4	..	5.0995	16 29	34	1.6097	0 ^π 19	22	.7281	12 ^r 31	4 37	.3405			
	8	..	5.0981	18 21	35	1.6135	6 39	37	.7282	4 ^v 23	1 18	.3219			
	12	..	5.0968	20 12	37	1.6172	12 58	50	.7282	28 21	1 N 17	.3102			
	16	..	5.0955	22 3	39	1.6208	19 18	3	.7282	23 ^π 30	4 6	.3079			
	20	..	5.0942	23 54	40	1.6243	25 38	11	.7280	18 ^π 21	6 6	.3156			
	24	..	5.0929	25 4	42	1.6277	1 ^x 58	17	.7279	11 ^a 30	58	.3316			
	28	..	5.0916	27 33	43	1.6310	8 18	22	.7277	2 ^π 13	47	.3525			
November	1	..	5.0903	29 22	1 45	1.6342	14 39	3	.7274	20 27	5 54	.3755			
	5	..	5.0890	1 ^a 11	46	1.6372	21 0	23	.7271	6 ^a 30	4 38	.3983			
	9	..	5.0876	2 59	47	1.6401	27 21	20	.7267	20 50	3 11	.4190			
	13	..	5.0863	4 47	48	1.6428	3 ^r 43	14	.7262	3 ^m 53	1 41	.4364			
	17	..	5.0850	6 35	48	1.6453	10 5	6	.7259	16 0	0 13	.4503			
	21	..	5.0836	8 22	49	1.6477	16 28	2	.7253	27 29	1 S 12	.4601			
	25	..	5.0823	10 9	50	1.6499	22 51	43	.7248	8 ^r 36	2 31	.4655			
	29	..	5.0810	11 56	50	1.6521	29 14	39	.7243	19 35	3 42	.4665			
December	3	..	5.0796	13 42	51	1.6541	5 ^v 38	12	.7237	0 ^v 40	4 47	.4680			
	7	..	5.0783	15 28	51	1.6559	12 2	1 54	.7232	12 4	5 41	.4552			
	11	..	5.0769	17 14	51	1.6575	18 27	35	.7226	23 59	6 25	.4431			
	15	..	5.0756	19 0	51	1.6589	24 52	13	.7221	6 ^a 44	52	.4270			
	19	..	5.0743	20 46	51	1.6603	1 ^π 17	0 52	.7216	20 36	59	.4075			
	23	..	5.0730	22 31	51	1.6615	7 43	30	.7210	5 ^x 38	39	.3857			
	27	..	5.0717	24 16	51	1.6627	14 10	7	.7206	23 12	5 43	.3625			
31	..	..	5.0704	26 1	5 ^v	1.6637	20 37	16	.7201	12 ^r 41	4 2	.3403			

52 Heliocentric Places of Planets at Noon I. S. T. in 1949.

Month and Date.	♂			♃			♄		
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
Jan. 1	1 0	1 31	9.2537	28 41	0 12	19.0077	13 17	1 34	30.2904
9	17	1 32	9.2557	48	12	19.006-	19	34	30.2905
17	34	1 32	9.2578	53	12	19.0047	22	34	30.2906
25	51	1 33	9.2599	59	12	19.0031	25	34	30.2904
Feb. 2	2 8	1 34	9.2620	29 5	12	19.0016	28	34	30.2902
10	15	1 35	9.2641	11	12	19.0003	31	34	30.2902
18	42	1 35	9.2662	17	12	18.9986	34	34	30.2903
26	59	1 36	9.2683	22	12	18.9971	36	34	30.2903
March 6	3 16	1 36	9.2704	28	12	18.9955	39	34	30.2902
14	33	1 37	9.2725	34	13	18.9943	42	34	30.2903
22	50	1 37	9.2746	39	13	18.9928	45	34	30.2904
30	4 7	1 37	9.2767	45	13	18.9915	48	34	30.2905
April 7	24	1 38	9.2789	51	13	18.9900	51	34	30.2906
15	41	1 39	9.2812	57	13	18.9886	54	34	30.2906
23	58	1 40	9.2832	0 2	13	18.9871	57	34	30.2907
May 1	5 15	1 40	9.2853	8	13	18.9856	59	34	30.2908
9	31	1 41	9.2875	14	13	18.9842	14 2	34	30.2908
17	48	1 41	9.2897	20	13	18.9827	5	34	30.2909
25	6 5	1 42	9.2919	25	13	18.9813	8	34	30.2910
June 2	22	1 42	9.2939	31	13	18.9799	11	34	30.2910
10	39	1 43	9.2960	37	13	18.9783	14	34	30.2911
18	56	1 43	9.2982	43	13	18.9770	17	34	30.2912
26	7 13	1 43	9.3004	48	13	18.9751	19	34	38.2912
July 4	30	1 44	9.3026	54	13	18.9739	22	35	30.2913
12	46	1 45	9.3048	1 0	14	18.9727	25	35	30.2914
20	8 3	1 46	9.3070	6	14	19.9711	28	35	30.2915
28	20	1 46	9.3091	12	14	18.9696	31	35	30.2916
Aug. 5	35	1 47	9.3114	17	14	18.9678	34	35	30.2916
13	52	1 47	9.3136	23	14	18.9666	36	35	30.2916
21	9 9	1 47	9.3158	29	14	18.9652	39	35	30.2917
29	26	1 48	9.3180	35	14	18.9639	42	35	30.2917
Sept. 6	43	1 48	9.3202	40	14	18.9624	45	35	30.2918
14	10 0	1 48	9.3225	46	14	18.9611	48	35	30.2919
22	17	1 49	9.3247	52	15	18.9596	51	35	30.2920
30	34	1 49	9.3269	58	15	18.9580	53	35	30.2922

Heliocentric Places of Planets at Noon I. S. T. in 1949. 53

Month and Date.	♂			♃			♄		
	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.	Long.	Lat.	Radius Vector.
Oct. 8	52	1 50	9.3292	12 3	0 15	18.9567	14 56	1 35	30.2922
16	11 9	1 50	9.3314	9	15	18.9552	59	35	30.2922
24	26	1 51	9.3337	15	15	18.9536	15 2	35	30.2923
Nov. 1	43	1 52	9.3360	21	15	18.9523	5	35	30.2924
9	12 0	1 52	9.3382	27	15	18.9508	7	35	30.2922
17	17	1 53	9.3404	52	15	18.9495	10	35	30.2924
25	34	1 53	9.3426	38	15	18.9480	13	35	30.2925
Dec. 3	51	1 54	9.3458	44	15	18.9464	16	35	30.2927
11	13 8	1 54	9.3479	50	15	18.9449	19	35	30.2928
19	24	1 55	9.3500	55	15	18.9433	22	35	30.2926
27	41	1 55	9.3521	3 1	15	18.9417	25	35	30.2927
31	47	1 55	9.3530	4	15	18.9409	26	35	30.2927

Date.	JANUARY.				FEBRUARY.				MARCH.							
	D	h	m	s	D	h	m	s	D	h	m	s				
1	12	21	ID36	D76	D61	D47	11r49	IR15	+	75	61	48	11	47	60	48
2	8	38	38	74	62	47	47	13	75	61	47	47	48	48	60	47
3	11	58	36	75	61	46	50	13	75	61	48	51	48	60	47	
4	4	51	37	75	61	47	55	11	75	61	47	58	9	60	47	
5	5	48	35	75	61	47	12	9	75	61	48	12	9	60	47	
6	5	51	35	75	61	47	27	3	75	61	47	26	15	60	47	
7	7	57	34	74	61	48	50	0	75	61	47	43	20	60	48	
8	12	15	32	75	61	47	13	16	75	61	47	13	12	60	47	
9	29	33	30	76	62	47	47	39	75	61	48	36	18	60	47	
10	54	30	30	74	61	47	14	13	75	61	48	14	8	60	46	
11	13	20	27	75	61	47	42	25	75	60	47	34	22	60	47	
12	46	25	25	75	61	47	15	0	75	61	47	57	25	60	47	
13	14	12	23	75	61	48	9	10	75	60	47	15	13	60	48	
14	31	19	19	74	61	47	47	8	75	61	48	16	28	60	46	
15	44	14	14	76	61	47	14	57	74	61	47	9	28	59	47	
16	49	10	10	75	61	47	37	12	75	60	47	14	58	60	47	
17	44	1	0	75	61	47	13	54	75	61	48	34	31	60	47	
18	34	0	59	75	61	47	47	24	75	60	47	8	31	59	47	
19	19	3	42	75	61	48	11	34	75	61	47	13	43	60	47	
20	13	45	33	75	62	47	12	53	39	75	61	47	12	55	59	46
21	30	23	23	75	61	47	38	42	75	61	48	37	38	59	46	
22	16	10	10	75	61	47	26	47	75	60	47	16	37	60	47	
23	3	1	1	75	61	47	15	50	75	61	47	6	38	59	46	
24	52	0R11	22	75	61	47	7	52	75	61	48	11	57	60	47	
26	42	22	22	75	61	47	0	56	75	60	47	42	52	59	46	
27	30	33	33	75	61	48	11	55	1	0	2	51	44	60	47	
28	21	43	43	75	61	47	47	50	75	61	47	48	48	59	46	
29	10	53	53	75	61	47	...	...	...	...	...	49	46	74	47
30	2	1	1	75	61	48	...	...	...	...	...	52	48	75	46
31	11	54	3	75	61	47	...	...	...	...	...	58	59	59	46

Date.	APRIL.				MAY.				JUNE.							
	D	h	m	s	D	h	m	s	D	h	m	s				
1	12	6	ID48	74	59	46	12	44	1;D40	74	58	45	13	42	58	43
2	16	54	54	74	59	47	13	0	31	74	58	45	54	33	58	43
3	30	54	54	75	59	46	14	26	26	74	58	45	14	34	57	44
4	47	56	56	74	59	46	32	22	22	74	58	45	11	34	58	44
5	13	8	57	74	59	46	49	20	20	74	58	44	16	34	57	43
6	31	58	59	75	59	46	14	6	17	74	58	45	22	33	57	43
7	57	59	59	74	59	46	23	13	13	74	59	45	22	29	58	43
8	14	19	2	75	59	47	35	8	8	74	59	44	21	26	57	43
9	39	2	2	74	59	46	45	45	1	0	74	59	13	23	58	42
10	57	2	2	75	59	45	48	48	1	0	74	58	13	23	58	42
11	15	8	4	74	59	46	44	44	53	74	58	45	0	21	57	43
12	6	6	6	74	59	46	33	33	52	74	58	45	43	17	57	43
13	14	59	6	74	58	46	17	49	49	73	58	44	23	14	57	43
14	42	7	7	74	59	46	13	54	36	73	58	44	4	10	57	43
15	18	18	7	75	59	46	30	35	35	73	58	44	12	5	57	42
16	13	53	6	74	59	45	4	4	30	73	58	44	21	2	58	42
17	25	6	6	74	59	45	12	42	25	73	58	44	8	4	58	42
18	1	1	8	74	59	45	21	22	22	73	57	44	11	1	57	42
19	12	35	7	74	58	46	6	14	14	74	58	44	50	1	57	43
20	21	5	4	74	59	45	11	55	5	74	58	44	39	17	57	43
21	5	3	3	75	58	46	49	5	14	74	57	44	54	20	57	42
22	11	54	3	75	59	45	48	48	2	74	57	44	12	26	57	42
23	50	2	0	75	59	45	52	52	7	74	58	43	17	36	58	42
24	46	1	1	75	59	45	58	58	-R.4	73	57	44	34	34	58	43
25	50	54	54	75	58	46	12	10	12	74	58	43	53	40	57	42
26	53	53	53	74	58	45	22	16	16	74	58	43	13	49	58	42
27	12	0	9	74	58	45	37	19	19	74	57	44	29	49	57	42
28	9	45	45	74	58	45	51	26	26	73	58	44	44	53	57	42
29	20	42	42	74	58	45	18	6	6	73	57	44	56	57	57	41
30	31	40	40	74	58	45	19	28	28	73	58	43	14	8	57	42
31	...	...	...	...	...	...	32	31	31	74	57	44	8	7	57	42

Daily Motion of Planets in 1949.

SEPTEMBER.

Date.	JULY.				AUGUST.				SEPTEMBER.				
	D	V	φ	δ	D	V	φ	δ	D	V	φ	δ	
1	14	9	1L11	73	58	41	13R58	1P59	73	57	40	13	11
2	10	10	13	73	57	42	48	58	72	40	40	12	56
3	5	17	73	57	57	42	35	56	72	58	40	40	42
4	4	4	21	73	57	41	27	54	73	57	40	30	40
5	1	25	73	57	41	13	13	53	72	58	39	18	30
6	13	55	30	74	58	42	2	51	73	57	40	8	1
7	49	34	34	73	57	41	12	49	51	72	39	0	58
8	37	36	36	73	57	41	33	50	72	57	40	11	54
9	24	39	73	57	42	47	25	47	73	58	39	48	52
10	8	43	73	57	41	7	7	46	72	57	40	46	49
11	12	51	48	73	58	41	0	44	72	58	39	48	45
12	31	31	49	73	57	41	11	52	42	58	40	54	43
13	18	18	53	73	57	41	46	41	72	57	39	12	5
14	7	56	57	73	58	41	48	40	72	57	39	19	34
15	11	54	2	73	58	41	54	37	72	58	39	38	30
16	48	2	1	73	57	41	12	5	72	58	39	13	2
17	50	2	2	73	57	41	5	37	72	58	39	29	22
18	54	3	3	73	57	41	20	35	72	58	39	59	13
19	12	5	5	73	57	41	42	35	72	58	39	14	7
20	22	7	7	73	58	40	13	6	72	57	39	45	2
21	39	8	8	73	58	40	36	30	72	58	39	4	2
22	13	5	7	73	57	41	14	23	72	58	38	15	2
23	26	7	7	73	58	40	54	29	72	58	39	9	11
24	50	7	7	73	57	41	40	27	72	58	39	5	19
25	7	50	7	73	57	40	50	26	72	58	38	14	56
26	21	6	6	73	58	40	46	23	72	57	39	18	33
27	28	6	6	73	57	41	46	21	71	58	39	18	37
28	30	5	5	73	58	41	36	20	72	58	38	13	51
29	26	5	5	73	57	40	3	18	72	58	39	25	53
30	18	3	3	72	57	40	13	17	71	58	38	10	59
31	8	2	2	73	58	39	28	14	70	58	38	12	46

Daily Motion of Planets in 1949.

NOVEMBER.

Date.	OCTOBER.				NOVEMBER.				DECEMBER.				
	D	V	φ	δ	D	V	φ	δ	D	V	φ	δ	
1	12	30	1	7	70	59	37	11	51	1	D38	66	60
2	16	9	R	9	70	59	36	46	38	38	38	66	60
3	6	6	6	70	59	60	36	48	38	38	65	60	34
4	11	57	7	70	59	36	51	38	38	38	65	60	33
5	53	3	3	69	59	36	54	38	38	38	65	61	33
6	49	0	58	70	59	35	59	38	38	38	65	60	33
7	46	51	49	69	59	36	12	20	38	38	65	60	32
8	49	42	42	69	59	36	19	38	38	38	64	60	33
9	52	33	33	69	60	35	33	38	38	38	63	61	34
10	59	18	18	69	59	36	41	37	37	37	64	60	32
11	12	16	16	68	59	35	59	37	37	37	63	61	52
12	21	0	0	68	59	35	13	16	37	63	61	48	48
13	38	0	D10	68	60	36	34	34	37	63	60	33	14
14	56	26	26	68	59	36	14	3	37	63	61	32	16
15	13	20	26	69	60	35	12	36	36	63	60	32	28
16	47	40	40	68	59	35	37	36	36	62	61	32	36
17	14	10	47	68	60	34	51	36	36	61	60	31	38
18	35	57	57	68	59	35	15	1	35	62	61	30	37
19	57	3	1	68	60	35	14	53	36	61	60	31	24
20	15	7	10	68	59	35	14	36	36	60	61	31	6
21	13	15	15	67	59	34	36	36	36	60	60	31	13
22	7	18	18	68	60	35	12	34	34	60	61	31	43
23	14	52	22	68	59	34	13	45	33	60	61	30	53
24	31	26	26	67	59	34	16	16	34	59	60	30	30
25	2	29	31	66	60	34	12	51	34	59	61	30	12
26	13	39	31	67	60	35	27	34	34	58	61	31	11
27	10	33	33	67	60	33	10	34	34	59	61	31	58
28	12	46	34	67	60	34	11	56	34	57	60	31	47
29	24	24	36	66	60	34	49	34	34	58	61	29	50
30	11	36	36	66	60	34	46	34	34	57	61	29	57
31	11	58	37	67	60	33	33	33	33	57	61	29	9

58 Table showing the Position of M. C. corresponding to a given sidereal time.

Sid. Time.		M. C.	Sid. Time.		M. C.	Sid. Time.		M. C.	Sid. Time.		M. C.
H.	M.	°	H.	M.	°	H.	M.	°	H.	M.	°
0	0	0	6	0	0	12	0	0	18	0	0
	15	4		15	3		15	4		15	3
	30	8		30	6		30	8		30	6
	45	12		45	10		45	12		45	10
1	0	16	7	0	13	13	0	16	19	0	13
	15	20		15	17		15	20		15	17
	30	24		30	20		30	24		30	20
	45	28		45	24		45	28		45	24
2	0	2	8	0	27	14	0	2	20	0	27
	15	6		15	1		15	6		15	1
	30	9		30	5		30	9		30	5
	45	13		45	8		45	13		45	8
3	0	17	9	0	12	15	0	17	21	0	12
	15	21		15	16		15	21		15	16
	30	24		30	20		30	24		30	20
	45	28		45	23		45	28		45	23
4	0	2	10	0	27	16	0	2	22	0	27
	15	5		15	1		15	5		15	1
	30	9		30	5		30	9		30	5
	45	12		45	9		45	12		45	9
5	0	16	11	0	13	17	0	16	23	0	13
	15	19		15	17		15	19		15	17
	30	23		30	21		30	23		30	21
	45	26		45	25		45	26		45	25

Elements of the Planetary orbits for 12 O'clock noon (L. S. T.) on 1st January 1949.

Planet.	Mean Daily Motion.	Sidereal Revolution.	Ascending Node.	Eccentricity.	Mean Distance.
Sun	0° 59'	365° 256 Days.	..	.01673181	1.0000001
Moon	13° 10'	27° 322 "	..	.0549005	238860 (miles)
Mercury	4° 5'	87° 969 "	47° 42' 10"	.20562362	0.3870984
Venus	1° 36'	224° 701 "	76° 12' 11"	.00679873	0.7233301
Mars	0° 31'	686° 980 "	49° 8' 57"	.09335525	1.5236781
Jupiter	0° 4'	4332° 589 "	99° 54' 46"	.04841027	5.202561
Saturn	0° 2'	10759° 23 "	113° 11' 38"	.05573338	9.554747
Uranus	0° 0'	30688° 45 "	73° 42' 30"	.0483322	19.21814
Neptune	0° 0'	60181° 3 "	131° 11' 44"	.00899995	30.10957
Pluto	0° 0'	90469° 3 "	109° 33'	.24852	39.45743
Rahu	0° 3'	6793° 458 "	..	..	..
D's Perigee	0° 6'	3232° 591 "	..	..	..

Table of Ascendants for Latitudes 7° to 20°.

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
0	92	48 93	12 93	34 94	9 94	25 94	50 95	15 95	40 96	5 96	30 96	56 97	22 97	47 98
15	96	13 96	37 97	1 97	25 97	9 98	39 99	27 100	3 99	28 99	53 100	18 100	44 101	10 101
30	99	39 100	3 100	27 100	50 101	14 101	38 102	2 102	27 102	51 103	15 103	40 104	5 104	31 104
45	102	3 103	28 103	52 104	15 104	39 105	3 105	27 105	50 106	15 106	38 107	3 107	27 107	52 108
1	106	31 106	54 107	16 107	40 108	3 108	26 108	49 109	13 109	36 110	0 110	23 110	47 111	11 111
15	109	58 110	20 110	42 111	5 111	28 111	5 112	13 112	36 112	59 113	21 113	45 114	8 114	31 114
30	113	24 113	47 114	9 114	31 114	53 115	15 115	37 115	59 116	21 116	43 117	6 117	28 117	51 118
45	116	54 117	14 117	36 117	58 118	19 118	40 119	2 119	23 119	45 120	6 120	27 120	49 121	11 121
2	120	23 120	44 121	4 121	25 121	45 122	7 122	27 122	47 123	9 123	29 123	50 124	11 124	31 124
15	123	53 124	14 124	34 124	55 125	14 125	34 125	53 126	13 126	33 126	53 127	13 127	33 127	53 128
30	127	26 127	45 128	4 128	24 128	42 129	1 129	24 129	39 129	58 130	17 130	37 130	56 131	15 131
45	131	1 131	18 131	37 131	56 132	13 132	31 132	49 133	7 133	25 133	43 134	1 134	20 134	38 134
3	134	37 134	54 135	12 135	29 135	45 136	2 136	19 136	36 136	53 137	10 137	26 137	43 138	0 138
15	138	14 138	31 138	47 139	4 139	19 139	35 139	51 140	6 140	22 140	38 140	54 141	10 141	25 141
30	141	53 142	10 142	25 142	40 142	55 143	10 143	25 143	39 143	54 144	8 144	23 144	37 144	52 145
45	145	36 145	60 146	4 146	19 146	31 146	45 146	59 147	12 147	27 147	39 147	52 148	5 148	19 148
4	149	20 149	33 149	45 149	59 150	10 150	22 150	35 150	47 150	59 151	11 151	23 151	35 151	46 151
15	153	6 153	17 153	29 153	40 153	50 154	0 154	11 154	22 154	33 154	43 154	55 155	5 155	16 155
30	156	54 157	3 157	12 157	22 157	32 157	41 157	51 158	0 158	9 158	19 158	29 158	37 158	46 158
45	160	41 160	51 161	2 161	12 161	18 161	27 161	35 161	42 161	50 161	58 162	5 162	13 162	20 162
5	164	33 164	39 164	45 164	51 164	58 165	4 165	11 165	17 165	23 165	30 165	36 165	42 165	49 165
15	168	22 168	28 168	33 168	38 168	43 168	47 168	52 168	57 169	2 169	7 169	11 169	16 169	20 169
30	172	16 172	19 172	21 172	24 172	28 172	31 172	35 172	37 172	40 172	44 172	47 172	51 172	54 172
45	176	6 176	11 176	14 176	17 176	21 176	15 176	18 176	19 176	20 176	22 176	23 176	24 176	27 176
6	180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180

Table of Ascendants for Latitudes 7° to 20°.

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
6	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180	0 180
15	183	53 183	51 183	49 183	48 183	46 183	45 183	42 183	41 183	40 183	38 183	37 183	36 183	33 183
30	187	45 187	41 187	39 187	36 187	32 187	29 187	23 187	21 187	20 187	18 187	13 187	9 187	6 187
45	191	36 191	32 191	22 191	22 191	17 191	8 191	8 191	3 190	58 190	53 190	49 190	44 190	40 190
7	0 195	27 195	22 195	15 195	9 195	2 194	56 194	49 194	43 194	37 194	30 194	24 194	18 194	11 194
15	199	19 199	10 199	2 198	52 198	46 198	37 198	25 198	18 198	14 198	6 198	0 197	51 197	44 197
30	203	7 202	57 202	48 202	38 202	28 202	19 202	9 202	0 201	51 201	41 201	32 201	23 201	14 201
45	206	55 206	43 206	31 206	20 206	10 205	59 205	49 205	38 205	27 205	17 205	5 204	55 204	45 204
8	0 210	40 210	27 210	15 210	1 209	50 209	38 209	25 209	13 209	1 208	49 208	37 208	25 208	14 208
15	214	24 214	10 213	56 213	41 213	29 213	15 213	12 212	48 212	33 212	21 212	8 211	55 211	41 211
30	218	4 217	50 217	35 217	20 217	5 216	50 216	35 216	21 216	6 215	52 215	37 215	23 215	8 214
45	221	46 221	30 221	13 220	56 220	41 220	25 220	9 219	54 219	38 219	22 219	6 218	62 218	35 218
9	0 225	22 225	6 224	49 224	31 224	15 223	58 223	41 223	24 223	7 222	50 222	34 222	17 222	0 221
15	229	0 228	42 228	23 228	4 227	47 227	29 227	11 226	53 226	35 226	17 225	59 225	40 225	22 225
30	232	34 232	15 231	56 231	36 231	18 230	59 230	56 230	21 230	2 229	43 229	23 229	4 228	45 228
45	236	6 235	46 235	26 235	5 234	46 234	26 234	7 233	47 233	27 233	7 232	47 232	27 232	7 231
10	0 239	37 239	17 238	56 238	35 238	15 237	53 237	33 237	13 236	5 235	34 235	10 235	49 235	29 235
15	243	7 242	46 242	24 242	2 241	41 241	20 240	58 240	37 240	15 239	54 239	33 239	11 238	49 238
30	246	36 246	13 245	51 245	29 245	7 244	45 244	23 244	12 243	39 243	17 242	54 242	32 242	9 241
45	250	2 249	40 249	18 248	55 248	32 248	9 247	25 247	47 247	24 246	39 246	15 245	52 245	29 245
11	0 253	29 253	7 252	44 252	20 251	57 251	34 251	11 250	47 250	24 250	0 249	13 249	13 248	49 248
15	256	56 256	32 256	8 255	45 255	21 254	57 254	33 254	10 253	45 253	22 252	57 252	37 252	8 251
30	260	21 259	57 259	34 259	10 258	24 258	22 257	58 257	35 257	9 256	45 256	20 255	55 255	29 255
45	263	47 263	23 262	35 262	8 261	20 261	46 261	21 260	57 260	32 260	7 259	42 259	16 258	50 258
12	0 267	13 266	48 266	32 266	0 265	35 265	10 264	45 264	20 263	55 263	30 263	4 262	38 262	13 261

Table of Ascendants for Latitudes 7° to 20°.

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Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°	
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	
12	0	13 266	48 266	23 266	0 265	35 265	10 264	45 264	20 263	55 263	30 263	4 262	38 262	13 261	46
15	270	38 270	14 269	49 269	25 269	0 268	35 268	10 267	44 267	19 266	53 266	27 266	1 265	34 265	8
30	274	4 273	41 273	17 272	21 272	27 272	2 271	36 271	11 270	47 270	21 269	55 269	27 269	0 268	34
45	277	34 277	9 276	44 276	20 275	55 275	30 275	4 274	39 274	13 273	47 273	21 272	54 272	27 271	59
13	0	281	38 280	14 279	50 279	25 279	0 278	35 278	9 277	43 277	17 276	51 276	24 275	57 275	29
15	284	84 284	10 283	45 283	21 282	56 282	31 282	6 281	41 281	15 280	48 280	22 279	55 279	28 279	0
30	288	8 287	44 287	19 286	55 286	30 286	6 285	41 285	15 284	50 284	24 283	58 283	30 283	3 282	36
45	291	41 291	19 290	55 290	32 290	7 289	43 289	18 288	53 288	27 288	0 287	35 287	8 286	41 286	15
14	0	295	19 294	56 294	33 294	46 293	22 292	58 292	34 292	8 291	42 291	17 290	50 290	23 289	56
15	299	0 298	38 298	15 297	52 297	28 297	5 296	41 296	16 295	52 295	27 295	2 294	35 294	9 293	41
30	302	43 302	21 301	59 301	37 301	14 300	51 300	28 300	4 299	40 299	15 298	50 298	25 297	59 297	32
45	306	29 306	8 305	46 305	27 305	3 304	41 304	18 303	55 303	32 303	8 302	44 302	19 301	54 301	28
15	310	17 309	59 309	38 309	17 308	56 308	35 308	13 307	51 307	28 307	5 306	41 306	17 305	52 305	27
15	314	11 313	52 313	32 313	12 312	52 312	32 312	12 311	51 311	30 311	6 310	45 310	22 309	58 309	34
30	318	7 317	50 317	32 317	12 316	55 316	34 316	15 315	55 315	35 315	14 314	53 314	31 314	9 313	46
45	322	6 321	50 321	32 321	18 320	58 320	41 320	23 320	33 320	45 320	25 319	53 318	45 318	24 318	3
16	0	326	11 325	55 325	39 325	24 325	7 324	51 324	34 324	17 324	0 323	42 323	23 322	45 322	25
15	330	14 330	2 329	48 329	33 329	20 329	5 328	49 328	34 328	18 328	2 327	46 327	29 327	10 326	52
30	334	25 334	11 333	47 333	35 333	22 333	6 332	56 332	41 332	28 332	5 331	43 331	58 331	42 331	28
45	338	37 338	25 338	15 338	5 337	54 337	42 337	31 337	19 337	8 336	56 336	43 336	30 336	17 336	2
17	0	342	37 342	41 342	38 342	25 342	15 342	6 341	58 341	48 341	28 341	17 341	7 340	56 340	45
15	347	5 346	58 346	52 346	47 346	39 346	33 346	25 346	18 346	11 346	3 345	55 345	47 345	39 345	31
30	351	22 351	18 351	15 351	11 351	6 351	1 350	56 350	41 350	26 350	41 350	36 350	30 350	25 350	20
45	355	42 355	40 355	38 355	34 355	31 355	26 355	21 355	16 355	11 355	20 355	17 355	15 355	13 355	9
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table of Ascendants for Latitudes 7° to 20°.

63

Sid. Time.	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	4	19	4	23	4	27	4	31	4	37	4	43	4	49
30	8	37	8	46	8	54	8	59	9	14	9	24	9	30
45	17	56	13	8	13	21	13	35	13	42	13	57	14	13
19	0	17	14	17	17	35	17	45	18	22	18	32	18	43
15	21	27	18	21	25	26	22	29	22	41	22	47	23	30
30	25	35	25	26	30	32	26	31	26	42	27	53	27	36
45	29	46	29	30	34	35	28	33	27	48	31	60	31	42
20	0	33	5	34	21	34	36	34	31	42	35	54	32	43
15	37	54	38	42	38	42	39	43	39	57	40	69	38	50
30	41	53	42	48	43	48	43	45	44	60	45	78	43	58
45	47	58	46	50	47	51	45	47	48	66	48	84	46	66
21	0	49	42	50	22	50	43	51	41	52	56	82	48	68
15	53	30	53	52	54	57	55	55	52	69	56	93	50	74
30	57	17	57	59	58	62	62	63	62	78	64	100	53	80
45	61	0	61	62	61	65	65	66	65	82	72	110	56	86
22	0	64	41	65	47	65	49	66	47	71	71	118	58	93
15	68	19	68	69	68	72	68	72	68	88	76	126	60	100
30	71	53	72	71	72	75	72	76	72	91	81	134	62	106
45	75	27	75	76	76	80	77	81	77	97	86	142	64	112
23	0	78	58	79	79	83	80	84	80	98	88	150	66	118
15	82	28	82	83	83	87	84	88	84	103	93	158	68	124
30	85	45	85	86	86	90	87	91	87	107	97	166	70	130
45	89	21	89	90	90	94	91	95	91	111	101	174	72	136
24	0	92	93	93	94	94	94	95	94	113	103	182	74	142

Table of Ascendants for Latitudes 21° to 34°.

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
0	98	41	99	35	100	31	100	59	101	27	101	56	102	34
1	15	102	28	102	55	103	22	103	49	104	17	104	45	105
2	30	105	48	106	14	106	40	107	7	107	33	108	2	108
3	45	108	42	109	7	109	32	109	57	110	23	110	49	111
4	15	115	18	115	42	116	16	116	30	116	54	117	19	117
5	30	118	39	119	0	119	23	119	46	120	10	120	33	120
6	45	121	54	122	17	122	38	123	2	123	47	124	9	124
7	15	123	31	123	35	123	51	123	34	123	54	123	15	123
8	30	131	54	132	13	132	35	132	51	133	10	133	30	133
9	45	135	15	135	32	135	50	136	7	136	26	136	44	137
10	0	138	34	138	52	139	9	139	26	139	43	140	0	140
11	15	141	57	142	13	142	29	142	43	143	1	143	17	143
12	30	145	20	145	35	145	50	146	5	146	19	146	33	146
13	45	148	45	148	59	149	12	149	26	149	38	149	51	150
14	0	152	10	152	22	152	32	152	42	152	58	153	16	153
15	15	155	36	155	47	155	58	156	8	156	19	156	30	156
16	30	159	4	159	13	159	22	159	31	159	40	159	50	159
17	45	162	35	162	44	162	50	162	26	162	41	162	50	162
18	0	166	2	166	8	166	14	166	20	166	26	166	32	166
19	15	169	30	169	35	169	40	169	44	169	49	169	53	169
20	30	173	0	173	6	173	9	173	12	173	15	173	19	173
21	45	176	29	176	32	176	33	176	34	176	36	176	38	176
22	0	180	0	180	0	180	0	180	0	180	0	180	0	180

Table of Ascendants for Latitudes 21° to 34°.

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
6	0	180	0	180	0	180	0	180	0	180	0	180	0	180
7	15	183	27	183	26	183	24	183	22	183	20	183	17	183
8	30	187	0	186	57	186	54	186	46	186	41	186	39	186
9	45	190	30	190	25	190	20	190	16	190	12	190	9	190
10	0	193	58	193	52	193	46	193	40	193	34	193	28	193
11	15	197	29	197	20	197	14	197	1	196	57	196	50	196
12	30	200	56	200	47	200	38	200	29	200	20	200	10	200
13	45	204	24	204	13	204	2	203	5	203	4	203	3	203
14	0	207	50	207	38	207	27	207	14	207	2	206	59	206
15	15	211	15	211	12	210	48	210	34	210	22	210	9	209
16	30	214	40	214	25	214	10	213	5	213	4	213	2	212
17	45	218	32	217	31	217	15	216	5	216	4	216	3	216
18	0	221	26	221	8	220	51	220	17	220	0	219	43	219
19	15	224	46	224	28	224	10	223	3	223	16	222	38	222
20	30	228	42	227	28	227	28	227	9	226	30	226	10	225
21	45	231	29	231	7	230	46	230	26	230	6	229	45	229
22	0	234	46	234	23	233	42	233	21	232	45	232	37	232
23	15	238	6	237	43	237	21	236	58	236	36	236	13	235
24	30	241	22	241	0	240	37	240	14	239	50	239	17	238
25	45	244	42	244	18	243	54	243	30	243	6	242	41	242
26	0	248	0	247	36	247	11	246	46	246	21	245	55	245
27	15	251	18	250	53	250	28	250	3	249	37	249	11	248
28	30	254	38	254	12	253	46	253	20	252	53	252	38	252
29	45	257	58	257	32	257	5	256	38	256	11	255	43	255
30	0	261	19	260	52	260	25	259	57	259	29	259	4	258

Table of Ascendants for Latitudes 21° to 34°.

Sid. Time.	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
L. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
12	0 261	19 260	52 260	25 259	57 259	29 259	0 258	31 258	4 257	34 257	3 256	34 256	3 255	31 254
15	264	41 264	14 263	45 263	18 262	49 262	20 261	51 261	22 260	51 260	19 259	49 259	18 258	45 258
30	268	6 237	38 267	8 266	41 266	12 265	42 265	12 264	42 264	11 263	39 263	8 262	36 262	2 261
45	271	32 271	4 270	35 270	6 269	38 269	7 268	37 268	6 267	34 267	1 266	23 265	56 265	22 264
3	0 275	1 274	33 274	4 273	34 273	6 272	34 272	4 271	33 271	0 270	27 269	54 269	21 268	46 268
15	278	32 278	3 277	35 277	5 276	36 276	4 275	34 275	2 274	23 273	55 273	22 272	48 272	12 271
30	282	7 281	38 281	9 280	39 280	10 279	38 279	8 278	35 278	2 277	28 276	54 276	19 275	8 274
45	285	46 285	17 284	48 284	18 283	49 283	17 282	47 282	13 281	40 281	5 280	32 279	57 279	20 278
14	0 289	28 288	59 288	30 288	0 287	31 286	59 286	29 285	55 285	22 284	48 284	14 283	36 283	1 282
15	293	14 292	46 292	17 291	48 291	18 290	46 290	16 289	43 289	10 288	35 288	1 287	25 286	49 286
30	297	5 296	38 296	9 295	40 295	11 294	41 294	11 293	38 293	5 292	30 291	57 291	20 290	43 290
45	301	2 300	34 300	7 299	38 299	9 298	39 298	10 297	38 297	5 296	31 295	57 295	22 294	45 294
15	305	2 304	36 304	8 303	41 303	13 302	44 302	14 301	42 301	10 300	36 300	3 299	28 298	52 298
30	309	9 308	44 308	18 307	51 307	24 306	55 306	26 305	56 305	24 304	52 304	20 303	46 303	10 302
45	313	22 312	59 312	54 312	8 311	42 311	15 310	47 310	18 309	48 309	17 308	45 308	13 307	38 307
16	0 317	41 317	18 316	56 316	31 316	6 315	40 315	14 314	47 314	18 313	48 313	19 312	48 312	15 311
30	321	5 321	43 321	21 320	59 320	36 320	12 319	48 319	23 318	55 318	27 317	59 317	30 316	59 316
45	322	38 322	15 325	56 325	35 325	14 324	52 324	30 324	6 323	42 323	16 322	50 322	25 322	59 322
15	326	9 330	53 330	35 330	16 329	57 329	38 329	18 328	57 328	35 328	12 327	50 327	25 326	59 326
30	331	9 330	53 330	35 330	16 329	57 329	38 329	18 328	57 328	35 328	12 327	50 327	25 326	59 326
45	335	49 335	35 335	19 335	3 334	48 334	31 334	14 333	55 333	36 333	17 332	57 332	35 332	35 332
17	0 340	34 340	22 340	9 339	56 339	43 339	30 339	16 338	4 338	44 338	29 338	12 337	58 337	16 337
30	345	22 345	13 345	3 344	54 344	44 344	33 344	22 344	11 343	59 343	46 343	33 343	19 343	4 342
45	350	14 350	7 350	1 349	54 349	47 349	41 349	25 349	17 349	8 348	59 348	49 348	40 348	29 348
18	0 355	7 355	4 354	59 354	56 354	53 354	49 354	46 354	42 354	38 354	33 354	29 354	24 354	19 354
	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table of Ascendants for Latitudes 21° to 34°.

Sid. Time	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°
H. M.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
18	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
15	4 53	4 56	5 5	1 5	4 5	7 5	14 5	18 5	5 22	5 22	5 27	5 31	5 41	5 46
30	9 46	9 53	9 59	10 6	10 13	10 19	10 26	10 35	10 43	10 52	11 1	11 1	11 11	11 31
45	14 38	14 47	14 57	15 6	15 16	15 27	15 38	15 49	16 1	16 16	16 27	16 41	16 56	17 12
19	0 19	26 19	38 19	51 20	4 20	17 20	30 20	44 21	0 21	16 21	31 21	48 22	6 22	22 44
15	24 11	24 25	24 41	24 57	25 12	25 29	25 46	26 5	26 24	26 43	27 3	27 24	27 47	28 8
30	28 51	29 7	29 25	29 44	30 3	30 30	30 46	30 55	31 3	31 25	31 48	32 10	32 35	33 8
45	33 27	33 45	34 4	34 25	34 36	34 46	34 53	35 3	35 18	36 44	37 7	37 36	38 5	38 35
20	0 37	55 38	17 38	39 39	1 39	24 39	48 40	12 40	37 41	5 41	33 42	1 42	30 43	1 43
15	42 19	42 42	42 43	4 43	29 43	54 44	44 45	13 45	42 46	42 46	41 47	42 47	45 48	48 15
30	46 38	47 1	47 26	47 52	48 18	48 45	49 13	49 42	50 12	50 43	51 15	51 47	52 22	52 55
45	50 51	51 16	51 42	52 9	52 36	53 5	53 34	54 4	54 36	55 8	55 40	56 14	56 50	57 26
21	0 54	58 59	26 59	53 60	22 60	51 61	21 61	50 62	22 62	55 63	29 64	3 64	38 65	15 65
15	58 58	55 24	55 52	56 19	56 47	57 17	57 50	58 18	58 50	59 24	59 57	60 32	61 8	61 45
30	62 55	63 22	63 51	64 20	64 48	65 19	65 49	66 22	66 55	67 30	68 3	68 40	69 17	69 54
45	66 46	67 14	67 43	68 12	68 42	69 14	69 44	70 17	70 50	71 25	71 59	72 35	73 11	73 47
22	0 70	32 71	1 71	30 72	0 72	29 73	1 73	31 74	5 74	38 75	46 76	24 76	59 77	33 78
15	74 14	74 43	75 12	75 42	76 11	76 43	77 13	77 47	78 20	78 55	79 28	80 4	80 40	81 16
30	77 53	78 22	78 51	79 21	79 50	80 22	80 52	81 25	81 54	82 32	83 6	83 41	84 17	84 52
45	81 84	81 57	82 25	82 55	83 24	83 56	84 26	84 58	85 31	86 5	86 38	87 12	87 48	88 24
23	0 84	59 85	27 85	56 86	26 86	54 87	26 87	56 88	27 89	0 89	33 89	6 90	39 91	14 91
15	88 28	88 56	89 25	89 54	90 22	90 53	91 23	91 54	92 26	92 59	93 31	94 4	94 38	95 11
30	91 54	92 22	92 52	93 19	93 48	94 18	94 48	95 18	95 49	96 4	96 52	97 24	97 58	98 31
45	95 19	95 46	96 15	96 42	97 11	97 40	98 8	98 38	99 9	99 41	100 11	100 42	101 15	101 48
24	0 98	41 99	8 99	35 100	3 100	31 100	59 101	27 101	56 102	26 102	57 103	26 103	57 104	29 105

Tables of Houses for Bombay, Lat. 18° N. 57'

Sid. Time.	10	11 12	Asc.	2	3	Sid. Time.	10	11 12	Asc.	2	3	Sid. Time.	10	11 12	Asc.	2	3	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	22	5	8	8	55	3	0	0	0	0	0	0	0	0	0	0	0
10	2	43	7	10	10	3	5	2	1	1	1	36	2	1	1	1	1	1
15	4	5	8	11	11	10	6	3	3	3	3	47	3	3	3	3	3	3
20	5	27	9	12	12	18	7	5	4	4	4	53	4	4	4	4	4	4
25	6	48	11	13	13	24	8	6	5	5	5	1	5	5	5	5	5	5
30	8	10	12	14	14	31	9	7	6	6	6	8	7	7	7	7	7	7
35	9	31	13	16	15	38	11	8	8	8	8	15	8	8	8	8	8	8
40	10	53	14	17	16	45	12	9	9	9	9	22	9	9	9	9	9	9
45	12	14	15	18	17	52	13	10	10	10	10	29	10	10	10	10	10	10
50	13	35	17	19	18	58	14	12	11	11	11	38	12	11	11	11	11	11
55	14	56	18	20	20	5	15	13	12	12	12	45	13	12	12	12	12	12
0	16	17	19	21	21	11	16	14	13	13	13	53	14	13	13	13	13	13
5	17	37	21	23	22	18	18	16	15	15	15	0	16	15	15	15	15	15
10	18	58	22	24	23	24	19	17	16	16	16	9	17	16	16	16	16	16
15	20	18	23	25	24	31	20	18	17	17	17	17	18	17	17	17	17	17
20	21	38	25	26	25	38	21	20	18	18	18	25	19	18	18	18	18	18
25	22	58	26	27	26	45	22	21	19	19	19	34	20	19	19	19	19	19
30	24	18	27	28	27	52	23	22	20	20	20	42	21	20	20	20	20	20
35	25	38	29	0	28	57	24	22	21	21	21	50	22	21	21	21	21	21
40	26	57	0	1	0	5	26	25	24	22	22	58	23	22	22	22	22	22
45	28	16	1	2	1	11	27	26	25	23	23	66	24	23	23	23	23	23
50	29	34	2	3	2	17	28	28	27	24	24	74	25	24	24	24	24	24
55	0	8	53	3	4	24	29	29	28	25	25	82	26	25	25	25	25	25

Tables of Houses for Bombay, Lat. 18° N. 57'

Sid. Time.	10	11 12	Asc.	2	3	Sid. Time.	10	11 12	Asc.	2	3	Sid. Time.	10	11 12	Asc.	2	3	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	9	1	2	1	11	0	1	1	1	1	11	0	1	1	1	1	1
10	2	18	2	3	2	22	2	2	2	2	2	22	2	2	2	2	2	2
15	3	26	3	4	3	33	3	3	3	3	3	33	3	3	3	3	3	3
20	4	35	4	5	4	45	4	4	4	4	4	45	4	4	4	4	4	4
25	5	44	5	6	5	56	5	5	5	5	5	56	5	5	5	5	5	5
30	6	53	6	7	6	67	6	6	6	6	6	67	6	6	6	6	6	6
35	8	2	8	9	8	17	8	8	8	8	8	17	8	8	8	8	8	8
40	9	11	9	10	9	29	9	9	9	9	9	29	9	9	9	9	9	9
45	10	20	11	11	10	40	10	10	10	10	10	40	10	10	10	10	10	10
50	11	30	12	13	11	49	11	11	11	11	11	49	11	11	11	11	11	11
55	12	39	14	14	13	1	13	13	13	13	13	1	13	13	13	13	13	13
0	13	48	15	15	14	11	14	14	14	14	14	11	14	14	14	14	14	14
5	14	58	16	16	15	22	15	15	15	15	15	22	15	15	15	15	15	15
10	16	8	17	17	16	33	16	16	16	16	16	33	16	16	16	16	16	16
15	17	18	18	18	17	44	17	17	17	17	17	44	17	17	17	17	17	17
20	18	28	19	19	18	55	18	18	18	18	18	55	18	18	18	18	18	18
25	19	38	21	21	20	4	20	20	20	20	20	4	20	20	20	20	20	20
30	20	48	22	22	21	14	21	21	21	21	21	14	21	21	21	21	21	21
35	21	59	23	23	22	24	22	22	22	22	22	24	22	22	22	22	22	22
40	23	10	24	25	23	34	23	23	23	23	23	34	23	23	23	23	23	23
45	24	20	22	26	24	45	24	24	24	24	24	45	24	24	24	24	24	24
50	25	32	27	27	25	55	25	25	25	25	25	55	25	25	25	25	25	25
55	26	43	28	29	27	4	26	26	26	26	26	4	26	26	26	26	26	26

Tables of Houses for Bombay, Lat. 18° N. 57'

Sid. Time.	10	1112	Asc.	2	3	Sid. Time.	10	1112	Asc.	2	3	Sid. Time.	10	1112	Asc.	2	3	
H. M.	0	0	128	22	33	23	26	11	25	20	23	24	0	2	5	27	23	22
12	0	1	22	229	3	19	25	27	37	25	0	37	25	3	17	28	25	24
5	1	2	43	3	0	24	26	26	29	3	53	27	3	4	28	29	26	25
10	2	4	5	4	125	34	27	0	25	0	25	0	6	5	39	0	27	27
15	4	5	27	5	226	44	28	1	38	6	126	42	2	6	50	2	28	28
20	5	4	48	7	327	52	29	3	54	7	228	59	3	8	1	3	29	0
25	6	10	8	429	0	0	4	4	11	8	329	16	4	9	11	4	0	1
30	8	10	31	10	6	0	6	4	12	9	430	16	4	10	11	4	0	1
35	9	31	10	6	0	0	6	4	13	9	531	16	4	10	11	4	0	1
40	10	53	1	7	1	18	3	7	14	12	8	2	27	4	32	6	4	4
45	12	14	12	8	2	27	4	8	17	11	16	5	33	6	45	11	15	15
50	13	35	13	9	3	36	5	10	22	13	11	11	54	8	12	4	5	6
55	14	56	14	10	4	47	7	12	27	14	14	12	57	11	12	4	5	6
13	0	16	17	15	11	5	57	8	33	12	7	4	81	6	13	5	2	9
5	17	37	16	12	7	6	9	14	42	14	10	7	15	13	19	8	10	14
10	18	58	18	13	8	17	11	16	57	16	11	8	16	15	20	10	14	10
15	20	18	19	14	9	28	12	17	21	11	17	12	15	19	15	19	14	10
20	21	38	21	16	10	40	14	19	25	19	13	11	21	18	23	15	19	14
25	22	58	22	17	11	52	15	20	23	38	20	15	25	21	25	20	20	15
30	24	18	23	18	13	3	16	21	26	51	21	16	30	23	7	18	16	20
35	25	38	24	19	14	15	18	23	35	26	4	22	35	24	16	19	18	22
40	26	57	25	20	15	28	19	24	40	27	17	23	40	25	25	20	20	23
45	28	16	26	21	16	41	20	25	45	28	29	24	45	26	33	22	21	25
50	28	34	28	23	17	54	21	27	50	29	42	25	50	27	42	23	22	26
55	0	53	29	24	19	8	23	29	55	0	54	26	55	28	51	24	23	28

Tables of Houses for Bombay, Lat. 18° N. 57'

Sid. Time.	10	1112	Asc.	2	3	Sid. Time.	10	1112	Asc.	2	3	Sid. Time.	10	1112	Asc.	2	3	
H. M.	0	0	25	25	0	6	25	11	12	12	12	0	27	49	29	5	9	0
18	0	9	27	26	1	37	7	8	6	28	2	8	5	29	7	1	7	10
5	1	18	28	28	3	12	8	10	9	4	9	11	10	1	26	2	8	12
10	2	26	29	0	4	47	9	11	15	5	11	15	15	1	44	4	9	13
15	3	45	0	5	6	25	11	12	20	2	6	13	20	3	6	11	14	14
20	4	53	3	3	9	35	14	14	25	3	8	14	25	4	23	7	12	15
25	5	2	4	5	11	11	15	15	30	5	9	15	30	5	42	9	14	16
30	6	11	15	15	15	49	9	14	35	6	10	17	35	7	2	10	15	18
35	8	20	6	8	12	21	17	18	40	7	8	12	40	8	22	11	17	19
40	9	11	5	6	12	47	16	17	45	8	3	10	45	9	42	12	18	20
45	10	20	6	8	14	21	17	18	50	10	3	10	50	11	2	14	19	21
50	11	30	7	10	15	56	18	19	55	11	17	11	55	12	22	15	21	22
55	12	39	8	11	17	31	19	20	23	12	32	13	23	13	43	17	22	24
19	5	58	12	13	20	37	23	2	23	13	47	15	23	14	48	22	25	26
5	14	8	13	15	22	9	24	24	16	17	18	22	16	15	46	22	26	27
10	16	8	13	15	22	9	24	24	16	17	18	22	16	15	46	22	26	27
15	17	18	15	16	23	43	26	25	25	18	33	19	20	19	7	23	28	28
20	18	28	16	17	25	15	28	26	30	20	49	20	25	20	29	25	29	29
25	19	38	17	19	26	46	29	27	35	21	5	21	27	2	1	28	23	23
30	20	48	18	21	28	18	0	28	40	22	22	23	28	3	18	0	24	24
35	21	59	20	22	29	48	1	29	45	23	39	25	29	4	35	1	25	25
40	23	10	21	24	1	20	2	1	45	23	56	26	1	5	51	2	27	26
45	24	20	22	26	2	50	3	2	50	25	13	27	2	7	7	3	28	27
50	25	32	23	28	4	18	4	3	55	26	31	28	4	8	23	4	29	28
55	26	43	24	30	5	47	5	4	55	26	43	24	3	5	47	5	4	29

Tables of Houses for Madras, Lat. 13° N. 4'.

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

Tables of Houses for Madras, Lat. 13° N. 4'.

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

Tables of Houses for Madras, Lat. 13° N. 4'

Sid. Time.	10	11 12	Asc.	2 3	Sid. Time.	10	11 12	Asc.	2 3	Sid. Time.	10	11 12	Asc.	2 3
H. M.	°	'	°	'	H. M.	°	'	°	'	H. M.	°	'	°	'
12	0	0	0	1 29 24	46 25 27	14	0	2	11	0 27 22	58 25 0	16	0	2
5	1	22	2	0 25	53 26 28	5	3	3	29	2 28 24	12 26 2	5	3	17
10	2	43	3	1 27	1 27 29	10	4	4	47	3 29 25	26 28 3	10	4	28
15	4	5	5	2 28	10 28 1	15	6	4	4	4 0 26	41 0 5	15	5	39
20	5	27	6	3 29	19 29 2	20	7	21	5	1 27	56 1 6	20	6	50
25	6	48	7	4 0	28 1 4	25	9	54	8	3 0	28 4 9	25	8	1
30	8	10	8	5 1	36 2 5	30	11	11	9	4 1	44 5 11	30	9	11
35	9	31	10	6 2	45 3 7	35	12	17	10	5 3	1 7 12	35	10	22
40	10	53	11	8 3	55 5 8	40	13	42	11	6 4	18 8 13	40	11	32
45	12	14	12	9 5	4 6 10	45	14	57	12	8 5	35 10 14	45	12	42
50	13	35	13	10 6	14 7 11	50	16	13	13	9 6	55 11 16	50	13	52
55	14	56	15	12 7	25 8 12	55	17	28	14	10 8	13 13 17	55	15	21
13	16	17	16	13 8	35 9 14	15	18	42	15	11 9	32 14 19	17	16	12
10	18	58	19	15 10	55 12 16	10	19	57	17	13 10	52 16 20	10	18	30
15	20	18	20	16 12	6 13 18	15	21	11	18	14 12	12 17 22	15	19	39
20	21	38	21	17 13	17 14 19	20	22	25	19	15 13	32 19 23	20	20	49
25	22	58	22	19 14	29 16 20	25	23	38	20	16 14	53 20 24	25	21	58
30	24	18	23	20 15	41 17 22	30	24	51	22	18 16	15 21 25	30	23	72
35	25	38	24	21 16	52 18 23	35	26	4	23	19 17	37 23 27	35	24	16
40	26	57	26	22 18	5 20 24	40	27	17	24	20 18	59 24 29	40	25	25
45	28	16	27	23 19	18 21 26	45	28	29	25	21 20	23 26 0	45	26	33
50	29	24	28	24 20	30 22 27	50	29	42	26	22 21	47 27 1	50	27	42
55	0	53	29	25 21	44 24 29	55	0	54	27	24 23	10 29 2	55	28	51

Tables of Houses for Madras, Lat. 13° N. 4'

Sid. Time.	10	11 12	Asc.	2 3	Sid. Time.	10	11 12	Asc.	2 3	Sid. Time.	10	11 12	Asc.	2 3
H. M.	°	'	°	'	H. M.	°	'	°	'	H. M.	°	'	°	'
18	0	0	26	26 0	0	27	0	22	0	27	0	5	7	2
5	1	9	28	27 1	30	5	29	54	27	5	29	7	6	16
10	2	18	29	29 3	2 7 7	10	4	6	28	2	6	10	8	30
15	3	26	0	4	31 9 8	15	6	16	0	3	8	13	9	42
20	4	35	1	6	3 10 9	20	8	30	1	5	9	20	11	55
25	5	44	2	7	33 12 10	25	10	43	2	6	11	25	13	68
30	6	43	3	9	4 13 11	30	12	56	4	7	12	30	15	89
35	8	2	5	10	35 14 12	35	14	9	5	9	13	33	17	104
40	9	11	7	12	5 16 14	40	16	22	6	10	15	40	19	121
45	10	20	8	13	35 17 15	45	18	35	7	12	16	45	21	138
50	11	30	9	15	3 19 16	50	20	49	8	13	17	50	23	156
55	12	38	10	16	34 20 17	55	22	17	12	16	20	55	25	174
19	0	48	11	18	22 18	19	0	32	13	17	21	60	27	192
5	14	58	12	19	23 22 19	5	13	47	14	19	23	65	29	210
10	16	8	14	15 21	0 24 21	10	15	31	14	19	23	70	31	228
15	17	18	15	17 22	29 25 22	15	16	34	15	20	24	75	33	246
20	18	28	16	18 23	57 26 23	20	17	33	16	25	25	80	35	264
25	19	58	17	20 25	23 27 24	25	18	33	17	26	26	85	37	282
30	20	48	19	21 26	51 28 25	30	20	49	20	28	28	90	39	300
35	21	59	20	23 28	18 29 26	35	21	59	22	29	29	95	41	318
40	23	10	22	24 29	45 1 28	40	22	22	23	28	30	100	43	336
45	24	20	23	26 1	11 2 29	45	23	39	24	29	2	105	45	354
50	25	32	24	27 2	36 3 0	50	25	13	27	3 1	34	110	47	372
55	26	43	25	29 4	2 4 1	55	26	31	29	3 5	48	115	49	390

LOGARITHMIC TABLE.

Hours or Degrees.

Min.	0	1	2	3	4	5	6	7	8	9	10	11	Min.
0	3.1584	1.3802	1.0792	.9031	.7781	.6812	.6021	.5351	.4771	.4260	.3802	.3388	0
1	3.1584	1.3730	1.0756	.9007	.7763	.6798	.6009	.5341	.4762	.4252	.3797	.3382	1
2	2.8573	1.3660	1.0720	.8983	.7745	.6784	.5997	.5330	.4753	.4244	.3788	.3375	2
3	2.6812	1.3590	1.0685	.8959	.7728	.6769	.5985	.5320	.4744	.4236	.3780	.3368	3
4	2.5563	1.3522	1.0649	.8935	.7710	.6755	.5973	.5310	.4735	.4228	.3773	.3362	4
5	2.4594	1.3454	1.0614	.8912	.7692	.6741	.5961	.5300	.4726	.4220	.3766	.3355	5
6	2.3802	1.3388	1.0580	.8888	.7674	.6726	.5949	.5289	.4717	.4212	.3759	.3349	6
7	2.3133	1.3323	1.0546	.8865	.7657	.6712	.5937	.5279	.4708	.4204	.3752	.3342	7
8	2.2553	1.3258	1.0511	.8842	.7639	.6698	.5925	.5269	.4699	.4196	.3745	.3336	8
9	2.2041	1.3195	1.0478	.8819	.7622	.6684	.5913	.5259	.4689	.4188	.3737	.3329	9
10	2.1584	1.3133	1.0444	.8796	.7604	.6670	.5902	.5249	.4682	.4180	.3730	.3323	10
11	2.1170	1.3071	1.0411	.8773	.7587	.6656	.5890	.5239	.4673	.4172	.3723	.3316	11
12	2.0792	1.3010	1.0378	.8751	.7570	.6642	.5878	.5229	.4664	.4164	.3716	.3310	12
13	2.0444	1.2950	1.0345	.8728	.7552	.6628	.5866	.5219	.4655	.4156	.3709	.3303	13
14	2.0122	1.2891	1.0313	.8706	.7535	.6614	.5855	.5209	.4646	.4148	.3702	.3297	14
15	1.9823	1.2833	1.0280	.8683	.7518	.6600	.5843	.5199	.4638	.4141	.3695	.3291	15
16	1.9542	1.2775	1.0248	.8661	.7501	.6587	.5832	.5189	.4629	.4133	.3688	.3284	16
17	1.9279	1.2719	1.0216	.8639	.7484	.6573	.5820	.5179	.4620	.4125	.3681	.3278	17
18	1.9031	1.2663	1.0185	.8617	.7467	.6559	.5809	.5169	.4611	.4117	.3674	.3271	18
19	1.8796	1.2607	1.0153	.8595	.7451	.6546	.5797	.5159	.4603	.4109	.3667	.3265	19
20	1.8573	1.2553	1.0122	.8573	.7434	.6532	.5786	.5149	.4594	.4102	.3660	.3259	20
21	1.8361	1.2499	1.0091	.8552	.7417	.6519	.5774	.5139	.4585	.4094	.3653	.3252	21
22	1.8159	1.2445	1.0061	.8530	.7401	.6505	.5761	.5129	.4577	.4086	.3646	.3246	22
23	1.7966	1.2393	1.0030	.8509	.7384	.6492	.5752	.5120	.4568	.4079	.3639	.3239	23
24	1.7781	1.2341	1.0000	.8487	.7368	.6478	.5740	.5110	.4559	.4071	.3632	.3233	24
25	1.7604	1.2289	.9970	.8466	.7351	.6465	.5729	.5100	.4551	.4063	.3625	.3227	25
26	1.7434	1.2239	.9940	.8445	.7335	.6451	.5718	.5090	.4542	.4055	.3618	.3220	26
27	1.7270	1.2188	.9910	.8424	.7318	.6438	.5706	.5081	.4534	.4048	.3611	.3214	27
28	1.7112	1.2139	.9881	.8403	.7302	.6425	.5695	.5071	.4525	.4040	.3604	.3208	28
29	1.6960	1.2090	.9852	.8382	.7286	.6412	.5684	.5061	.4516	.4032	.3597	.3201	29

LOGARITHMIC TABLE.

Hours or Degrees.

Min.	0	1	2	3	4	5	6	7	8	9	10	11	Min.
30	1.6812	1.2041	.9823	.8361	.7270	.6398	.5673	.5051	.4508	.4025	.3590	.3195	30
31	1.6670	1.1993	.9794	.8341	.7254	.6385	.5662	.5042	.4499	.4017	.3583	.3189	31
32	1.6532	1.1946	.9765	.8327	.7238	.6372	.5651	.5032	.4491	.4010	.3576	.3183	32
33	1.6398	1.1899	.9737	.8309	.7222	.6359	.5640	.5023	.4482	.4002	.3570	.3176	33
34	1.6269	1.1852	.9708	.8279	.7206	.6346	.5629	.5013	.4474	.3994	.3563	.3170	34
35	1.6143	1.1806	.9680	.8259	.7190	.6333	.5618	.5003	.4466	.3987	.3556	.3164	35
36	1.6021	1.1761	.9652	.8239	.7174	.6320	.5607	.4994	.4457	.3979	.3549	.3157	36
37	1.5902	1.1716	.9625	.8219	.7159	.6307	.5596	.4984	.4449	.3972	.3542	.3151	37
38	1.5786	1.1671	.9597	.8199	.7143	.6294	.5585	.4975	.4440	.3964	.3535	.3145	38
39	1.5673	1.1627	.9570	.8179	.7128	.6282	.5573	.4965	.4432	.3957	.3529	.3139	39
40	1.5563	1.1584	.9542	.8159	.7112	.6269	.5563	.4956	.4424	.3949	.3522	.3133	40
41	1.5456	1.1540	.9515	.8140	.7097	.6256	.5552	.4947	.4415	.3942	.3515	.3126	41
42	1.5351	1.1498	.9488	.8120	.7081	.6243	.5541	.4937	.4407	.3934	.3508	.3120	42
43	1.5249	1.1455	.9462	.8101	.7066	.6231	.5531	.4928	.4399	.3927	.3501	.3114	43
44	1.5149	1.1413	.9435	.8081	.7050	.6218	.5520	.4918	.4390	.3919	.3495	.3108	44
45	1.5051	1.1372	.9409	.8062	.7035	.6205	.5509	.4909	.4382	.3912	.3488	.3102	45
46	1.4956	1.1331	.9383	.8042	.7020	.6193	.5498	.4900	.4374	.3905	.3481	.3096	46
47	1.4863	1.1290	.9356	.8023	.7005	.6180	.5488	.4890	.4365	.3897	.3475	.3089	47
48	1.4771	1.1249	.9330	.8004	.6990	.6168	.5477	.4881	.4357	.3890	.3468	.3083	48
49	1.4682	1.1209	.9305	.7985	.6975	.6155	.5466	.4872	.4349	.3882	.3461	.3077	49
50	1.4594	1.1170	.9279	.7966	.6960	.6143	.5456	.4863	.4341	.3875	.3454	.3071	50
51	1.4508	1.1130	.9254	.7947	.6945	.6131	.5445	.4853	.4333	.3868	.3448	.3065	51
52	1.4424	1.1091	.9228	.7929	.6930	.6118	.5435	.4844	.4324	.3860	.3441	.3059	52
53	1.4341	1.1053	.9203	.7910	.6915	.6101	.5424	.4835	.4316	.3853	.3434	.3053	53
54	1.4260	1.1015	.9178	.7891	.6900	.6094	.5414	.4826	.4308	.3846	.3428	.3047	54
55	1.4180	1.0977	.9153	.7873	.6885	.6081	.5403	.4817	.4300	.3838	.3421	.3041	55
56	1.4102	1.0939	.9128	.7854	.6867	.6069	.5393	.4808	.4292	.3831	.3415	.3034	56
57	1.4025	1.0902	.9104	.7836	.6856	.6057	.5382	.4798	.4284	.3824	.3408	.3028	57
58	1.3949	1.0865	.9079	.7818	.6841	.6045	.5372	.4789	.4276	.3817	.3401	.3021	58
59	1.3875	1.0828	.9055	.7800	.6827	.6033	.5361	.4780	.4268	.3809	.3395	.3016	59

LOGARITHMIC TABLE.
Hours or Degrees.

Min.	12	13	14	15	16	17	18	19	20	21	22	23	Min.
0	.3010	.2663	.2311	.2041	.1761	.1498	.1249	.1015	.792	.580	.378	.185	0
1	.3004	.2657	.2306	.2036	.1756	.1493	.1245	.1011	.788	.576	.375	.182	1
2	.2998	.2652	.2300	.2032	.1752	.1489	.1241	.1007	.785	.573	.371	.179	2
3	.2992	.2646	.2295	.2027	.1747	.1485	.1237	.1003	.781	.570	.368	.175	3
4	.2986	.2640	.2290	.2022	.1743	.1481	.1233	.999	.778	.566	.365	.172	4
5	.2980	.2635	.2285	.2017	.1738	.1476	.1229	.996	.774	.563	.361	.169	5
6	.2974	.2629	.2280	.2012	.1734	.1472	.1225	.992	.770	.559	.358	.166	6
7	.2968	.2624	.2275	.2008	.1729	.1468	.1221	.988	.766	.556	.355	.163	7
8	.2962	.2618	.2270	.2003	.1725	.1464	.1217	.984	.763	.552	.352	.160	8
9	.2956	.2613	.2265	.1998	.1720	.1459	.1213	.980	.759	.549	.348	.157	9
10	.2950	.2607	.2260	.1993	.1716	.1455	.1209	.977	.756	.546	.345	.154	10
11	.2944	.2602	.2254	.1988	.1711	.1451	.1205	.973	.752	.542	.342	.150	11
12	.2938	.2596	.2249	.1984	.1707	.1447	.1201	.969	.749	.539	.339	.147	12
13	.2933	.2591	.2244	.1979	.1702	.1443	.1197	.965	.745	.535	.335	.144	13
14	.2927	.2585	.2239	.1974	.1698	.1438	.1193	.962	.741	.532	.332	.141	14
15	.2921	.2580	.2234	.1969	.1694	.1434	.1190	.958	.738	.529	.329	.138	15
16	.2915	.2574	.2229	.1965	.1689	.1430	.1186	.954	.734	.525	.326	.135	16
17	.2909	.2569	.2224	.1960	.1685	.1426	.1182	.950	.731	.522	.322	.132	17
18	.2903	.2564	.2219	.1955	.1680	.1422	.1178	.947	.727	.518	.319	.129	18
19	.2897	.2558	.2214	.1950	.1676	.1417	.1174	.943	.724	.515	.316	.125	19
20	.2891	.2553	.2209	.1946	.1671	.1413	.1170	.939	.720	.512	.313	.122	20
21	.2885	.2547	.2204	.1941	.1667	.1409	.1166	.935	.716	.508	.309	.119	21
22	.2880	.2542	.2200	.1936	.1662	.1405	.1162	.932	.713	.505	.306	.116	22
23	.2874	.2536	.2195	.1932	.1658	.1401	.1158	.928	.709	.501	.303	.113	23
24	.2868	.2531	.2191	.1927	.1654	.1397	.1154	.924	.706	.498	.300	.110	24
25	.2862	.2526	.2186	.1922	.1649	.1392	.1150	.920	.702	.495	.296	.107	25
26	.2856	.2520	.2182	.1917	.1645	.1388	.1146	.917	.699	.491	.293	.104	26
27	.2850	.2515	.2178	.1913	.1640	.1384	.1142	.913	.695	.488	.290	.101	27
28	.2845	.2509	.2174	.1908	.1636	.1380	.1138	.909	.692	.484	.287	.098	28
29	.2839	.2504	.2170	.1903	.1632	.1376	.1134	.906	.688	.481	.284	.095	29

LOGARITHMIC TABLE.
Hours or Degrees.

Min.	12	13	14	15	16	17	18	19	20	21	22	23	Min.
30	.2833	.2499	.2183	.1899	.1627	.1372	.1130	.9002	.685	.478	.280	.091	30
31	.2827	.2493	.2183	.1894	.1623	.1368	.1127	.899	.681	.474	.277	.088	31
32	.2821	.2488	.2178	.1889	.1618	.1363	.1123	.894	.678	.471	.274	.085	32
33	.2816	.2483	.2173	.1885	.1614	.1359	.1119	.889	.674	.468	.271	.082	33
34	.2810	.2477	.2168	.1880	.1610	.1355	.1115	.887	.670	.464	.267	.079	34
35	.2804	.2472	.2164	.1875	.1605	.1351	.1111	.883	.667	.461	.264	.076	35
36	.2798	.2467	.2159	.1871	.1601	.1347	.1107	.880	.663	.458	.261	.073	36
37	.2793	.2461	.2154	.1866	.1597	.1343	.1103	.876	.660	.454	.258	.070	37
38	.2787	.2456	.2149	.1862	.1592	.1339	.1099	.872	.656	.451	.255	.067	38
39	.2781	.2451	.2144	.1857	.1588	.1335	.1095	.869	.652	.448	.251	.064	39
40	.2775	.2445	.2139	.1852	.1584	.1331	.1091	.865	.649	.444	.248	.061	40
41	.2770	.2440	.2134	.1848	.1579	.1326	.1088	.861	.646	.441	.245	.058	41
42	.2764	.2435	.2129	.1843	.1575	.1322	.1084	.857	.642	.436	.242	.055	42
43	.2758	.2430	.2124	.1838	.1571	.1318	.1080	.854	.639	.434	.239	.052	43
44	.2753	.2424	.2119	.1834	.1566	.1314	.1076	.850	.635	.431	.236	.049	44
45	.2747	.2419	.2114	.1829	.1561	.1310	.1072	.846	.632	.428	.232	.046	45
46	.2741	.2414	.2109	.1825	.1558	.1306	.1068	.843	.628	.424	.229	.042	46
47	.2736	.2409	.2104	.1820	.1553	.1302	.1064	.839	.625	.421	.226	.039	47
48	.2730	.2403	.2099	.1816	.1549	.1298	.1061	.835	.622	.418	.223	.036	48
49	.2724	.2398	.2095	.1811	.1545	.1294	.1057	.832	.618	.414	.220	.033	49
50	.2719	.2393	.2090	.1806	.1540	.1290	.1053	.828	.615	.411	.216	.030	50
51	.2713	.2388	.2085	.1802	.1536	.1286	.1049	.825	.611	.408	.213	.027	51
52	.2707	.2382	.2080	.1797	.1532	.1282	.1045	.821	.608	.404	.210	.024	52
53	.2702	.2377	.2075	.1793	.1528	.1278	.1041	.817	.604	.401	.207	.021	53
54	.2696	.2372	.2070	.1788	.1523	.1274	.1038	.814	.601	.398	.204	.018	54
55	.2691	.2367	.2065	.1784	.1519	.1270	.1034	.810	.597	.394	.201	.015	55
56	.2685	.2362	.2061	.1779	.1515	.1266	.1030	.806	.594	.391	.197	.012	56
57	.2679	.2356	.2056	.1774	.1510	.1261	.1026	.803	.590	.388	.194	.009	57
58	.2674	.2351	.2051	.1770	.1506	.1257	.1022	.799	.587	.384	.191	.006	58
59	.2668	.2346	.2046	.1765	.1502	.1253	.1018	.795	.583	.381	.188	.003	59



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