

Sun

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	12:04	-23	12:06	-22	12:09	-21	12:11	-20	12:13	-18
Feb	12:14	-17	12:14	-15	12:14	-13	12:14	-11	12:13	-8
Mar	12:12	-8	12:11	-5	12:09	-2	12:11	0	12:05	3
Apr	12:04	5	12:02	7	12:00	9	11:59	12	11:58	14
May	11:57	15	11:57	17	11:56	19	11:57	20	11:57	21
Jun	11:58	22	11:59	23	12:00	23	12:02	23	12:03	23
Jul	12:04	23	12:05	23	12:06	22	12:06	20	12:06	19
Aug	12:06	18	12:06	16	12:05	14	12:03	12	12:01	10
Sep	12:00	8	11:58	6	11:56	3	11:53	1	11:51	-2
Oct	11:50	-3	11:48	-6	11:46	-8	11:45	-11	11:44	-13
Nov	11:44	-14	11:44	-16	11:44	-18	11:46	-20	11:48	-21
Dec	11:49	-22	11:51	-23	11:55	-23	11:58	-23	12:01	-23

Mercury

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	13:07	-23	13:20	-21	13:24	-17	13:00	-15	12:05	-15
Feb	11:30	-16	10:51	-18	10:30	-19	10:26	-19	10:32	-18
Mar	10:33	-17	10:42	-16	10:55	-12	11:11	-8	11:29	-3
Apr	11:44	0	12:04	6	12:29	12	12:55	18	13:14	22
May	13:19	23	13:20	24	13:07	24	12:36	22	11:55	19
Jun	11:32	18	11:01	17	10:38	17	10:29	18	10:33	20
Jul	10:39	21	10:59	23	11:32	24	12:09	22	12:41	19
Aug	12:56	16	13:14	12	13:28	7	13:36	2	13:39	-2
Sep	13:38	-4	13:31	-7	13:12	-9	12:37	-8	11:43	-4
Oct	11:21	-2	10:50	1	10:40	1	10:48	-3	11:02	-8
Nov	11:11	-10	11:25	-14	11:41	-18	11:59	-21	12:17	-24
Dec	12:25	-25	12:42	-26	13:02	-25	13:18	-24	13:24	-22

Venus

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	11:47	-24	11:56	-23	12:06	-22	12:16	-21	12:25	-19
Feb	12:29	-17	12:35	-15	12:42	-12	12:47	-9	12:52	-5
Mar	12:53	-5	12:56	-2	13:04	2	13:09	5	13:13	9
Apr	13:16	11	13:20	14	13:26	17	13:33	19	13:40	21
May	13:44	22	13:51	23	14:00	24	14:10	25	14:19	25
Jun	14:24	25	14:31	24	14:39	22	14:45	20	14:51	18
Jul	14:52	17	14:55	15	14:58	11	14:59	8	14:59	5
Aug	14:59	3	14:58	0	14:55	-4	14:52	-7	14:48	-10
Sep	14:45	-12	14:40	-14	14:32	-17	14:22	-19	14:04	-21
Oct	13:56	-22	13:38	-23	13:10	-23	12:35	-23	11:55	-21
Nov	11:30	-19	10:55	-17	10:18	-14	9:49	-12	9:27	-11
Dec	9:19	-11	9:07	-11	8:57	-12	8:51	-13	8:47	-14

Mars

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	16:28	-6	16:20	-4	16:11	-2	16:06	0	15:57	2
Feb	15:52	4	15:44	5	15:35	7	15:26	9	15:17	11
Mar	15:16	12	15:09	13	15:00	15	14:52	16	14:43	18
Apr	14:39	19	14:32	20	14:24	21	14:17	22	14:09	23
May	14:06	23	14:00	24	13:53	24	13:46	24	13:38	24
Jun	13:34	24	13:28	24	13:20	24	13:12	24	13:04	23
Jul	13:01	23	12:54	22	12:45	21	12:36	20	12:27	19
Aug	12:22	18	12:14	17	12:04	16	11:54	14	11:43	13
Sep	11:37	12	11:28	11	11:17	9	11:06	7	10:51	6
Oct	10:47	5	10:37	3	10:26	1	10:15	0	10:04	-2
Nov	9:57	-3	9:48	-5	9:37	-6	9:26	-8	9:15	-10
Dec	9:11	-10	9:02	-12	8:52	-13	8:42	-15	8:32	-16

Jupiter

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	0:04	23	23:37	23	23:05	23	22:34	23	22:03	23
Feb	21:46	23	21:20	23	20:51	23	20:22	23	19:54	23
Mar	19:50	23	19:27	23	19:00	23	18:34	23	18:09	23
Apr	17:55	23	17:34	23	17:10	23	16:46	23	16:23	23
May	16:13	23	15:54	23	15:32	23	15:10	23	14:48	23
Jun	14:36	23	14:17	22	13:56	22	13:35	22	13:14	22
Jul	13:05	22	12:47	22	12:26	21	12:05	21	11:44	21
Aug	11:32	21	11:14	20	10:53	20	10:32	20	10:10	19
Sep	9:58	19	9:39	19	9:17	18	8:55	18	8:28	18
Oct	8:19	18	7:59	17	7:36	17	7:12	17	6:48	17
Nov	6:34	16	6:12	16	5:47	16	5:21	16	4:54	16
Dec	4:43	16	4:19	16	3:51	16	3:23	16	2:53	16

Saturn

	1st		7th		14th		21st		28th	
	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec	Tran	Dec
Jan	21:49	20	21:24	20	20:55	20	20:26	20	19:58	20
Feb	19:42	20	19:18	20	18:51	20	18:24	20	17:57	20
Mar	17:53	20	17:31	20	17:05	20	16:39	20	16:14	20
Apr	16:00	21	15:38	21	15:14	21	14:49	21	14:25	21
May	14:15	21	13:54	21	13:30	21	13:06	21	12:43	21
Jun	12:29	22	12:09	22	11:45	22	11:22	22	10:58	22
Jul	10:48	22	10:27	22	10:03	22	9:39	22	9:15	22
Aug	9:01	22	8:41	22	8:16	22	7:51	22	7:26	22
Sep	7:11	22	6:49	22	6:24	22	5:57	22	5:27	22
Oct	5:15	22	4:52	22	4:25	22	3:57	22	3:29	22
Nov	3:12	22	2:48	22	2:18	22	1:49	22	1:19	22
Dec	1:07	22	0:41	22	0:11	22	23:41	22	23:11	22

Sidereal time

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	6:41	8:44	10:34	12:36	14:35	16:37	18:35	20:37	22:39	0:38	2:40	4:38
2	6:45	8:48	10:38	12:40	14:38	16:41	18:39	20:41	22:43	0:42	2:44	4:42
3	6:49	8:52	10:42	12:44	14:42	16:45	18:43	20:45	22:47	0:46	2:48	4:46
4	6:53	8:55	10:46	12:48	14:46	16:49	18:47	20:49	22:51	0:50	2:52	4:50
5	6:57	8:59	10:50	12:52	14:50	16:53	18:51	20:53	22:55	0:54	2:56	4:54
6	7:01	9:03	10:54	12:56	14:54	16:56	18:55	20:57	22:59	0:57	3:00	4:58
7	7:05	9:07	10:58	13:00	14:58	17:00	18:59	21:01	23:03	1:01	3:04	5:02
8	7:09	9:11	11:02	13:04	15:02	17:04	19:03	21:05	23:07	1:05	3:08	5:06
9	7:13	9:15	11:06	13:08	15:06	17:08	19:07	21:09	23:11	1:09	3:12	5:10
10	7:17	9:19	11:10	13:12	15:10	17:12	19:11	21:13	23:15	1:13	3:15	5:14
11	7:21	9:23	11:13	13:16	15:14	17:16	19:14	21:17	23:19	1:17	3:19	5:18
12	7:25	9:27	11:17	13:20	15:18	17:20	19:18	21:21	23:23	1:21	3:23	5:22
13	7:29	9:31	11:21	13:24	15:22	17:24	19:22	21:25	23:27	1:25	3:27	5:26
14	7:33	9:35	11:25	13:27	15:26	17:28	19:26	21:28	23:31	1:29	3:31	5:29
15	7:37	9:39	11:29	13:31	15:30	17:32	19:30	21:32	23:35	1:33	3:35	5:33
16	7:41	9:43	11:33	13:35	15:34	17:36	19:34	21:36	23:39	1:37	3:39	5:37
17	7:44	9:47	11:37	13:39	15:38	17:40	19:38	21:40	23:43	1:41	3:43	5:41
18	7:48	9:51	11:41	13:43	15:42	17:44	19:42	21:44	23:46	1:45	3:47	5:45
19	7:52	9:55	11:45	13:47	15:45	17:48	19:46	21:48	23:50	1:49	3:51	5:49
20	7:56	9:59	11:49	13:51	15:49	17:52	19:50	21:52	23:54	1:53	3:55	5:53
21	8:00	10:02	11:53	13:55	15:53	17:56	19:54	21:56	23:58	1:57	3:59	5:57
22	8:04	10:06	11:57	13:59	15:57	18:00	19:58	22:00	0:02	2:01	4:03	6:01
23	8:08	10:10	12:01	14:03	16:01	18:03	20:02	22:04	0:06	2:04	4:07	6:05
24	8:12	10:14	12:05	14:07	16:05	18:07	20:06	22:08	0:10	2:08	4:11	6:09
25	8:16	10:18	12:09	14:11	16:09	18:11	20:10	22:12	0:14	2:12	4:15	6:13
26	8:20	10:22	12:13	14:15	16:13	18:15	20:14	22:16	0:18	2:16	4:19	6:17
27	8:24	10:26	12:17	14:19	16:17	18:19	20:18	22:20	0:22	2:20	4:22	6:21
28	8:28	10:30	12:20	14:23	16:21	18:23	20:21	22:24	0:26	2:24	4:26	6:25
29	8:32		12:24	14:27	16:25	18:27	20:25	22:28	0:30	2:28	4:30	6:29
30	8:36		12:28	14:31	16:29	18:31	20:29	22:32	0:34	2:32	4:34	6:33
31	8:40		12:32		16:33		20:33	22:36		2:36		6:37

Notes

This table records the sidereal time corresponding to 0h Local Standard Time on your meridian. You can use this to find the approximate transit time of a star of given RA, and estimate what stars will be favourably placed for observation at any given time of day.

Semi-diurnal arc table

Semi-diurnal arc in hours and minutes of time by latitude of observer and declination of star

		Latitude											
		25.0	30.0	35.0	37.5	40.0	45.0	50.0	51.5	52.5	55.0	57.5	60.0
Declination of body	0	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00
	1	6:01	6:02	6:02	6:03	6:03	6:04	6:04	6:05	6:05	6:05	6:06	6:06
	2	6:03	6:04	6:05	6:06	6:06	6:08	6:09	6:10	6:10	6:11	6:12	6:13
	3	6:05	6:06	6:08	6:09	6:10	6:12	6:14	6:15	6:15	6:17	6:18	6:20
	4	6:07	6:09	6:11	6:12	6:13	6:16	6:19	6:20	6:20	6:22	6:25	6:27
	5	6:09	6:11	6:14	6:15	6:16	6:20	6:23	6:25	6:26	6:28	6:31	6:34
	6	6:11	6:13	6:16	6:18	6:20	6:24	6:28	6:30	6:31	6:34	6:37	6:41
	7	6:13	6:16	6:19	6:21	6:23	6:28	6:33	6:35	6:36	6:40	6:44	6:49
	8	6:15	6:18	6:22	6:24	6:27	6:32	6:38	6:40	6:42	6:46	6:50	6:56
	9	6:16	6:20	6:25	6:27	6:30	6:36	6:43	6:45	6:47	6:52	6:57	7:03
	10	6:18	6:23	6:28	6:31	6:34	6:40	6:48	6:51	6:53	6:58	7:04	7:11
	11	6:20	6:25	6:31	6:34	6:37	6:44	6:53	6:56	6:58	7:04	7:11	7:18
	12	6:22	6:28	6:34	6:37	6:41	6:49	6:58	7:02	7:04	7:10	7:17	7:26
	13	6:24	6:30	6:37	6:40	6:44	6:53	7:03	7:07	7:10	7:17	7:24	7:34
	14	6:26	6:33	6:40	6:44	6:48	6:57	7:09	7:13	7:15	7:23	7:32	7:42
	15	6:28	6:35	6:43	6:47	6:51	7:02	7:14	7:18	7:21	7:30	7:39	7:50
	16	6:30	6:38	6:46	6:50	6:55	7:06	7:19	7:24	7:27	7:36	7:47	7:59
	17	6:32	6:40	6:49	6:54	6:59	7:11	7:25	7:30	7:33	7:43	7:54	8:07
	18	6:34	6:43	6:52	6:57	7:03	7:15	7:31	7:36	7:40	7:50	8:02	8:17
	19	6:36	6:45	6:55	7:01	7:07	7:20	7:36	7:42	7:46	7:57	8:10	8:26
	20	6:39	6:48	6:59	7:04	7:11	7:25	7:42	7:48	7:53	8:05	8:19	8:36
	21	6:41	6:51	7:02	7:08	7:15	7:30	7:48	7:55	8:00	8:12	8:28	8:46
	22	6:43	6:53	7:05	7:12	7:19	7:35	7:55	8:02	8:07	8:20	8:37	8:57
	23	6:45	6:56	7:09	7:16	7:23	7:40	8:01	8:09	8:14	8:29	8:47	9:09
	24	6:47	6:59	7:12	7:19	7:27	7:45	8:08	8:16	8:21	8:37	8:57	9:21
	25	6:50	7:02	7:16	7:23	7:32	7:51	8:15	8:23	8:29	8:47	9:08	9:35
	26	6:52	7:05	7:19	7:27	7:36	7:56	8:22	8:31	8:37	8:56	9:19	9:50
27	6:54	7:08	7:23	7:32	7:41	8:02	8:29	8:39	8:46	9:06	9:32	10:07	
28	6:57	7:11	7:27	7:36	7:45	8:08	8:37	8:47	8:55	9:17	9:46	10:28	
29	6:59	7:14	7:31	7:40	7:50	8:14	8:45	8:56	9:05	9:29	10:01	10:55	
30	7:02	7:17	7:35	7:45	7:55	8:21	8:53	9:06	9:15	9:42	10:19	12:00	
35	7:16	7:35	7:57	8:10	8:23	8:57	9:46	10:06	10:23	12:00			
40	7:32	7:55	8:23	8:40	8:59	9:48	12:00						
45	7:51	8:21	8:57	9:20	9:48	12:00							
50	8:15	8:53	9:46	10:24	12:00								
55	8:47	9:42	12:00										
60	9:35	12:00											
65	12:00												

Notes

This table shows half the time that a star stays *above* the horizon when the declination and latitude are of the same name; and *below* the horizon if the declination and latitude have contrary names.

Amplitude

Degrees from due East for rising

		Latitude																											
		20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	52.5	54	56	58	60	62	64	66	68		
Declination of body	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3		
	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	
	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	5	6	6	6	7	7	8		
	4	4	4	4	4	5	5	5	5	5	5	5	5	6	6	6	6	7	7	7	7	8	8	9	9	10	11		
	5	5	5	5	6	6	6	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	10	11	11	12	13		
	6	6	6	7	7	7	7	7	7	7	8	8	8	8	9	9	9	10	10	10	11	11	12	13	14	15	16		
	7	7	8	8	8	8	8	8	8	9	9	9	9	10	10	10	11	11	12	12	13	13	14	15	16	17	19		
	8	9	9	9	9	9	9	9	10	10	10	10	11	11	12	12	13	13	13	14	14	15	16	17	19	20	22		
	9	10	10	10	10	10	10	11	11	11	11	12	12	13	13	14	14	15	15	15	16	17	18	19	21	23	25		
	10	11	11	11	11	11	12	12	12	12	13	13	14	14	14	15	16	16	17	17	18	19	20	22	23	25	28		
	11	12	12	12	12	13	13	13	14	14	14	15	15	16	17	17	18	18	19	20	21	22	24	26	28	31			
	12	13	13	13	14	14	14	15	15	15	16	16	17	17	18	19	20	20	21	22	23	25	26	28	31	34			
	13	14	14	14	15	15	15	16	16	17	17	18	18	19	20	20	21	22	23	24	25	27	29	31	34	37			
	14	15	15	16	16	16	17	17	17	18	18	19	20	20	21	22	23	23	24	26	27	29	31	33	36	40			
	15	16	16	17	17	18	18	19	19	20	20	21	22	23	24	25	25	26	28	29	31	33	36	40	44				
	16	17	18	18	19	19	20	20	21	21	22	22	23	24	25	27	27	28	30	31	33	36	39	43	47				
	17	18	19	19	20	20	21	21	22	22	23	24	25	26	27	28	29	30	32	33	36	39	42	46	51				
	18	19	20	20	21	21	22	22	23	24	25	25	26	28	29	30	31	32	34	36	38	41	45	49	56				
	19	20	21	21	22	22	23	23	24	24	25	26	27	28	29	30	32	32	34	36	38	41	44	48	53	60			
	20	21	22	22	23	23	24	24	25	26	27	27	28	29	31	32	34	34	36	38	40	43	47	51	57	66			
	21	22	23	23	24	24	25	26	26	27	28	29	30	31	32	34	36	36	38	40	43	46	50	55	62	73			
	22	23	24	24	25	25	26	26	27	28	28	29	30	31	33	34	36	37	38	40	42	45	49	53	59	67			
	23	25	25	26	26	27	27	28	29	30	31	32	33	34	36	37	39	40	42	44	48	51	56	63	74				
	24	26	26	27	27	28	29	29	30	31	32	33	34	36	37	39	41	42	44	47	50	54	60	68	90				
	26	28	28	29	29	30	31	32	33	34	35	36	38	39	41	43	45	46	48	52	56	61	69	90					
	28	30	30	31	32	33	34	34	35	37	38	39	41	43	45	47	50	50	53	57	62	70	90						
	30	32	33	34	34	35	36	37	38	39	41	42	44	46	48	51	54	55	58	63	71	90							
	32	34	35	36	37	38	39	40	41	42	44	45	47	50	52	56	59	61	64	71	90								
	34	37	38	39	40	41	42	44	45	47	49	51	54	57	60	65	67	72											
	36	39	40	41	42	43	44	45	47	48	50	52	55	58	61	66	73	75	90										
	38	41	42	43	44	45	47	48	50	51	53	56	59	62	67	73	90												
	40	43	44	45	46	47	48	49	51	53	55	57	60	63	68	74	90												
	42	45	46	47	48	49	51	52	54	56	58	61	64	68	74	90													
	44	48	49	51	52	53	55	57	59	62	65	69	75	90															
	46	50	51	52	53	55	56	58	60	63	66	70	75	90															
	48	52	53	54	56	57	59	61	64	67	71	76	90																
	50	55	56	57	58	60	62	65	68	71	76	90																	
	52	57	58	60	61	63	65	68	72	77																			
	54	59	61	62	64	66	69	73	77	90																			
	56	62	63	65	67	70	73	78																					
	58	64	66	68	71	74	78	90																					
	60	67	69	71	74	79	90																						
	62	70	72	75	79	90																							
	64	73	76	80	90																								
	66	76	80	90																									
	68	81	90																										
	70	90																											