

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	131°10.9'	176°37.9'	S 17°10.1'	209°34.5'	S 16°15.0'	151°53.7'	S 9°45.9'	172°58.4'	S 17°00.1'	215°14.6'	S 23°49.0'	
1	146°13.4'	191°37.8'	S 17°09.4'	224°36.7'	S 16°15.0'	166°55.6'	S 9°45.7'	188°00.6'	S 16°60.0'	230°15.1'	S 23°48.9'	
2	161°15.8'	206°37.7'	S 17°08.7'	239°38.9'	S 16°15.1'	181°57.5'	S 9°45.5'	203°02.8'	S 16°59.9'	245°15.6'	S 23°48.9'	
3	176°18.3'	221°37.7'	S 17°08.0'	254°41.0'	S 16°15.2'	196°59.5'	S 9°45.3'	218°04.9'	S 16°59.8'	260°16.0'	S 23°48.8'	
4	191°20.8'	236°37.6'	S 17°07.3'	269°43.2'	S 16°15.3'	212°01.4'	S 9°45.1'	233°07.1'	S 16°59.7'	275°16.5'	S 23°48.8'	
5	206°23.2'	251°37.5'	S 17°06.6'	284°45.4'	S 16°15.3'	227°03.3'	S 9°44.8'	248°09.3'	S 16°59.6'	290°17.0'	S 23°48.7'	
6	221°25.7'	266°37.4'	S 17°05.8'	299°47.6'	S 16°15.4'	242°05.2'	S 9°44.6'	263°11.4'	S 16°59.6'	305°17.4'	S 23°48.7'	
7	236°28.2'	281°37.3'	S 17°05.1'	314°49.7'	S 16°15.5'	257°07.2'	S 9°44.4'	278°13.6'	S 16°59.5'	320°17.9'	S 23°48.7'	
8	251°30.6'	296°37.2'	S 17°04.4'	329°51.9'	S 16°15.5'	272°09.1'	S 9°44.2'	293°15.8'	S 16°59.4'	335°18.4'	S 23°48.6'	
9	266°33.1'	311°37.1'	S 17°03.7'	344°54.0'	S 16°15.6'	287°11.0'	S 9°44.0'	308°17.9'	S 16°59.3'	350°18.9'	S 23°48.6'	
10	281°35.6'	326°37.1'	S 17°03.0'	359°56.2'	S 16°15.7'	302°12.9'	S 9°43.8'	323°20.1'	S 16°59.2'	5°19.3'	S 23°48.5'	
11	296°38.0'	341°37.0'	S 17°02.3'	14°58.3'	S 16°15.8'	317°14.8'	S 9°43.5'	338°22.2'	S 16°59.1'	20°19.8'	S 23°48.5'	
12	311°40.5'	356°36.9'	S 17°01.6'	30°00.5'	S 16°15.8'	332°16.8'	S 9°43.3'	353°24.4'	S 16°59.0'	35°20.3'	S 23°48.4'	
13	326°42.9'	11°36.8'	S 17°00.9'	45°02.6'	S 16°15.9'	347°18.7'	S 9°43.1'	8°26.6'	S 16°59.0'	50°20.7'	S 23°48.4'	
14	341°45.4'	26°36.7'	S 17°00.1'	60°04.7'	S 16°16.0'	2°20.6'	S 9°42.9'	23°28.7'	S 16°58.9'	65°21.2'	S 23°48.3'	
15	356°47.9'	41°36.6'	S 16°59.4'	75°06.9'	S 16°16.1'	17°22.5'	S 9°42.7'	38°30.9'	S 16°58.8'	80°21.7'	S 23°48.3'	
16	11°50.3'	56°36.6'	S 16°58.7'	90°09.0'	S 16°16.1'	32°24.4'	S 9°42.5'	53°33.1'	S 16°58.7'	95°22.1'	S 23°48.2'	
17	26°52.8'	71°36.5'	S 16°58.0'	105°11.1'	S 16°16.2'	47°26.4'	S 9°42.3'	68°35.2'	S 16°58.6'	110°22.6'	S 23°48.2'	
18	41°55.3'	86°36.4'	S 16°57.3'	120°13.2'	S 16°16.3'	62°28.3'	S 9°42.0'	83°37.4'	S 16°58.5'	125°23.1'	S 23°48.1'	
19	56°57.7'	101°36.3'	S 16°56.6'	135°15.3'	S 16°16.4'	77°30.2'	S 9°41.8'	98°39.6'	S 16°58.4'	140°23.5'	S 23°48.0'	
20	72°00.2'	116°36.2'	S 16°55.8'	150°17.4'	S 16°16.5'	92°32.1'	S 9°41.6'	113°41.7'	S 16°58.4'	155°24.0'	S 23°48.0'	
21	87°02.7'	131°36.2'	S 16°55.1'	165°19.5'	S 16°16.5'	107°34.1'	S 9°41.4'	128°43.9'	S 16°58.3'	170°24.5'	S 23°47.9'	
22	102°05.1'	146°36.1'	S 16°54.4'	180°21.6'	S 16°16.6'	122°36.0'	S 9°41.2'	143°46.1'	S 16°58.2'	185°25.0'	S 23°47.9'	
23	117°07.6'	161°36.0'	S 16°53.7'	195°23.7'	S 16°16.7'	137°37.9'	S 9°41.0'	158°48.2'	S 16°58.1'	200°25.4'	S 23°47.8'	
		SD 16.2'	d 0.7'	v 2.1'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.0'	
Mer. pass.		12 h 13 m 32 s		10 h 0 m		13 h 51 m		12 h 26 m		9 h 39 m		

h	Moon					Lunar distance				
	GHA	dec	v	d	HP	-Capella	-Aldebaran	-Rigel	-Fomalhaut	-Jupiter
0	178°36.8'	S 22°36.8'	4.9'	8.9'	60.1'					
1	193°00.7'	S 22°27.9'	5.0'	9.1'	60.1'					
2	207°24.8'	S 22°18.8'	5.1'	9.2'	60.0'					
3	221°48.9'	S 22°09.6'	5.2'	9.4'	60.0'					
4	236°13.2'	S 22°00.3'	5.4'	9.5'	60.0'					
5	250°37.5'	S 21°50.8'	5.5'	9.6'	60.0'					
6	265°02.0'	S 21°41.1'	5.6'	9.8'	60.0'					
7	279°26.5'	S 21°31.3'	5.7'	9.9'	59.9'					
8	293°51.2'	S 21°21.4'	5.8'	10.0'	59.9'					
9	308°16.0'	S 21°11.4'	5.9'	10.2'	59.9'					
10	322°40.9'	S 21°01.2'	6.0'	10.3'	59.9'					
11	337°06.0'	S 20°50.9'	6.1'	10.4'	59.9'					
12	351°31.1'	S 20°40.5'	6.3'	10.6'	59.8'					
13	5°56.4'	S 20°29.9'	6.4'	10.7'	59.8'					
14	20°21.8'	S 20°19.2'	6.5'	10.8'	59.8'					
15	34°47.2'	S 20°08.4'	6.6'	10.9'	59.8'					
16	49°12.8'	S 19°57.5'	6.7'	11.0'	59.7'					
17	63°38.6'	S 19°46.4'	6.8'	11.2'	59.7'					
18	78°04.4'	S 19°35.3'	7.0'	11.3'	59.7'					
19	92°30.4'	S 19°24.0'	7.1'	11.4'	59.7'					
20	106°56.4'	S 19°12.6'	7.2'	11.5'	59.6'					
21	121°22.6'	S 19°01.1'	7.3'	11.6'	59.6'					
22	135°48.9'	S 18°49.5'	7.4'	11.7'	59.6'	119°29.5'	107°14.6'	108°20.2'	19°53.1'	15°43.2'
23	150°15.3'	S 18°37.8'	7.5'	11.8'	59.6'	118°56.5'	106°38.8'	107°50.4'	19°32.7'	15°08.9'
Mer. pass.	12 h 35 m	SD 16.4'	phase 0%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.1'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°05.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.5'	S 60°55.2'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	132°10.1'	176°35.9'	S 16°53.0'	210°25.8'	S 16°16.8'		152°39.8'	S 9°40.7'		173°50.4'	S 16°58.0'		215°25.9'	S 23°47.8'				
1	147°12.5'	191°35.8'	S 16°52.2'	225°27.9'	S 16°16.9'		167°41.7'	S 9°40.5'		188°52.5'	S 16°57.9'		230°26.4'	S 23°47.7'				
2	162°15.0'	206°35.8'	S 16°51.5'	240°30.0'	S 16°16.9'		182°43.7'	S 9°40.3'		203°54.7'	S 16°57.8'		245°26.8'	S 23°47.7'				
3	177°17.4'	221°35.7'	S 16°50.8'	255°32.1'	S 16°17.0'		197°45.6'	S 9°40.1'		218°56.9'	S 16°57.7'		260°27.3'	S 23°47.6'				
4	192°19.9'	236°35.6'	S 16°50.1'	270°34.1'	S 16°17.1'		212°47.5'	S 9°39.9'		233°59.0'	S 16°57.7'		275°27.8'	S 23°47.6'				
5	207°22.4'	251°35.5'	S 16°49.3'	285°36.2'	S 16°17.2'		227°49.4'	S 9°39.7'		249°01.2'	S 16°57.6'		290°28.2'	S 23°47.5'				
6	222°24.8'	266°35.4'	S 16°48.6'	300°38.3'	S 16°17.3'		242°51.3'	S 9°39.4'		264°03.4'	S 16°57.5'		305°28.7'	S 23°47.4'				
7	237°27.3'	281°35.4'	S 16°47.9'	315°40.3'	S 16°17.3'		257°53.3'	S 9°39.2'		279°05.5'	S 16°57.4'		320°29.2'	S 23°47.4'				
8	252°29.8'	296°35.3'	S 16°47.2'	330°42.4'	S 16°17.4'		272°55.2'	S 9°39.0'		294°07.7'	S 16°57.3'		335°29.6'	S 23°47.3'				
9	267°32.2'	311°35.2'	S 16°46.4'	345°44.4'	S 16°17.5'		287°57.1'	S 9°38.8'		309°09.9'	S 16°57.2'		350°30.1'	S 23°47.3'				
10	282°34.7'	326°35.1'	S 16°45.7'	0°46.5'	S 16°17.6'		302°59.0'	S 9°38.6'		324°12.0'	S 16°57.1'		5°30.6'	S 23°47.2'				
11	297°37.2'	341°35.1'	S 16°45.0'	15°48.5'	S 16°17.7'		318°00.9'	S 9°38.4'		339°14.2'	S 16°57.1'		20°31.0'	S 23°47.1'				
12	312°39.6'	356°35.0'	S 16°44.3'	30°50.6'	S 16°17.8'		333°02.9'	S 9°38.1'		354°16.3'	S 16°57.0'		35°31.5'	S 23°47.1'				
13	327°42.1'	11°34.9'	S 16°43.5'	45°52.6'	S 16°17.8'		348°04.8'	S 9°37.9'		9°18.5'	S 16°56.9'		50°32.0'	S 23°47.0'				
14	342°44.5'	26°34.8'	S 16°42.8'	60°54.6'	S 16°17.9'		3°06.7'	S 9°37.7'		24°20.7'	S 16°56.8'		65°32.5'	S 23°47.0'				
15	357°47.0'	41°34.8'	S 16°42.1'	75°56.7'	S 16°18.0'		18°08.6'	S 9°37.5'		39°22.8'	S 16°56.7'		80°32.9'	S 23°46.9'				
16	12°49.5'	56°34.7'	S 16°41.4'	90°58.7'	S 16°18.1'		33°10.5'	S 9°37.3'		54°25.0'	S 16°56.6'		95°33.4'	S 23°46.8'				
17	27°51.9'	71°34.6'	S 16°40.6'	106°00.7'	S 16°18.2'		48°12.4'	S 9°37.1'		69°27.2'	S 16°56.5'		110°33.9'	S 23°46.8'				
18	42°54.4'	86°34.5'	S 16°39.9'	121°02.7'	S 16°18.3'		63°14.4'	S 9°36.9'		84°29.3'	S 16°56.4'		125°34.3'	S 23°46.7'				
19	57°56.9'	101°34.5'	S 16°39.2'	136°04.8'	S 16°18.3'		78°16.3'	S 9°36.6'		99°31.5'	S 16°56.4'		140°34.8'	S 23°46.7'				
20	72°59.3'	116°34.4'	S 16°38.4'	151°06.8'	S 16°18.4'		93°18.2'	S 9°36.4'		114°33.7'	S 16°56.3'		155°35.3'	S 23°46.6'				
21	88°01.8'	131°34.3'	S 16°37.7'	166°08.8'	S 16°18.5'		108°20.1'	S 9°36.2'		129°35.8'	S 16°56.2'		170°35.7'	S 23°46.5'				
22	103°04.3'	146°34.3'	S 16°37.0'	181°10.8'	S 16°18.6'		123°22.0'	S 9°36.0'		144°38.0'	S 16°56.1'		185°36.2'	S 23°46.5'				
23	118°06.7'	161°34.2'	S 16°36.2'	196°12.8'	S 16°18.7'		138°24.0'	S 9°35.8'		159°40.2'	S 16°56.0'		200°36.7'	S 23°46.4'				
		SD 16.2'	d 0.7'		v 2.0' d -0.1'			v 1.9' d 0.2'			v 2.2' d 0.1'			v 0.5' d 0.1'				
Mer. pass.		12 h 13 m 40 s		9 h 57 m			13 h 48 m			12 h 23 m			9 h 38 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sirius	-Betelgeuse	-Capella	-Adhara	-Rigel	-Aldebaran	-Fomalhaut	-Jupiter
0	164°41.9'	S 18°26.0'	7.7'	11.9'	59.5'			118°23.5'		107°20.7'	106°03.0'	19°13.0'	14°34.8'
1	179°08.5'	S 18°14.1'	7.8'	12.0'	59.5'			117°50.6'		106°50.9'	105°27.2'		14°00.8'
2	193°35.3'	S 18°02.1'	7.9'	12.1'	59.5'			117°17.6'		106°21.2'	104°51.5'		13°26.9'
3	208°02.2'	S 17°50.0'	8.0'	12.2'	59.5'			116°44.6'		105°51.4'	104°15.8'		12°53.3'
4	222°29.2'	S 17°37.8'	8.1'	12.3'	59.4'			116°11.6'		105°21.6'	103°40.1'		12°19.8'
5	236°56.3'	S 17°25.5'	8.2'	12.4'	59.4'		119°29.8'	115°38.7'		104°51.9'	103°04.4'		11°46.5'
6	251°23.5'	S 17°13.1'	8.3'	12.5'	59.4'			118°56.4'		104°22.1'	102°28.8'		11°13.4'
7	265°50.9'	S 17°00.6'	8.5'	12.6'	59.3'			118°23.0'	114°32.7'	103°52.3'	101°53.3'		10°40.6'
8	280°18.3'	S 16°48.0'	8.6'	12.7'	59.3'	119°51.5'		117°49.7'	113°59.8'	103°22.6'	101°17.7'		10°08.2'
9	294°45.9'	S 16°35.4'	8.7'	12.7'	59.3'	119°29.4'		117°16.3'	113°26.8'	115°03.5'	102°52.8'		9°36.0'
10	309°13.6'	S 16°22.6'	8.8'	12.8'	59.3'	119°07.3'		116°43.0'	112°53.9'	114°48.4'	102°23.0'		9°04.3'
11	323°41.4'	S 16°09.8'	8.9'	12.9'	59.2'	118°45.0'		116°09.6'	112°21.0'	114°33.2'	101°53.3'		8°33.0'
12	338°09.3'	S 15°56.9'	9.0'	13.0'	59.2'	118°22.6'		115°36.3'	111°48.1'	114°17.8'	101°23.5'		8°02.3'
13	352°37.3'	S 15°43.9'	9.1'	13.1'	59.2'	118°00.2'		115°03.0'	111°15.2'	114°02.3'	100°53.8'		7°32.3'
14	7°05.5'	S 15°30.9'	9.2'	13.1'	59.1'	117°37.6'		114°29.7'	110°42.3'	113°46.8'	100°24.1'		
15	21°33.7'	S 15°17.7'	9.4'	13.2'	59.1'	117°15.0'		113°56.4'	110°09.4'	113°31.0'	99°54.4'		
16	36°02.1'	S 15°04.5'	9.5'	13.3'	59.1'	116°52.2'		113°23.2'	109°36.6'	113°15.2'	99°24.7'		
17	50°30.5'	S 14°51.3'	9.6'	13.3'	59.0'	116°29.4'		112°49.9'	109°03.7'	112°59.3'	98°55.0'		
18	64°59.1'	S 14°37.9'	9.7'	13.4'	59.0'	116°06.5'		112°16.7'	108°30.9'	112°43.3'	98°25.3'		
19	79°27.8'	S 14°24.5'	9.8'	13.5'	59.0'	115°43.6'		111°43.5'	107°58.1'	112°27.1'	97°55.7'		
20	93°56.6'	S 14°11.1'	9.9'	13.5'	58.9'	115°20.5'		111°10.3'	107°25.4'	112°10.9'	97°26.0'		
21	108°25.5'	S 13°57.5'	10.0'	13.6'	58.9'	114°57.4'		110°37.1'	106°52.6'	111°54.6'	96°56.4'		
22	122°54.5'	S 13°43.9'	10.1'	13.7'	58.9'	114°34.2'		110°04.0'	106°19.9'	111°38.2'	96°26.8'		
23	137°23.6'	S 13°30.3'	10.2'	13.7'	58.8'	114°11.0'		109°30.9'	105°47.2'	111°21.6'	95°57.3'		
Mer. pass.		13 h 31 m SD 16.2'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°06.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.5'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.3'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	133°09.2'	S 16°35.5'	176°34.1'	S 16°34.8'	211°14.8'	S 16°18.8'	153°25.9'	S 9°35.6'	174°42.3'	S 16°55.9'	215°37.1'	S 23°46.3'
1	148°11.7'	S 16°34.8'	191°34.0'	S 16°34.8'	226°16.7'	S 16°18.9'	168°27.8'	S 9°35.3'	189°44.5'	S 16°55.8'	230°37.6'	S 23°46.3'
2	163°14.1'	S 16°34.0'	206°34.0'	S 16°34.0'	241°18.7'	S 16°19.0'	183°29.7'	S 9°35.1'	204°46.6'	S 16°55.8'	245°38.1'	S 23°46.2'
3	178°16.6'	S 16°33.3'	221°33.9'	S 16°33.3'	256°20.7'	S 16°19.0'	198°31.6'	S 9°34.9'	219°48.8'	S 16°55.7'	260°38.5'	S 23°46.1'
4	193°19.0'	S 16°32.6'	236°33.8'	S 16°32.6'	271°22.7'	S 16°19.1'	213°33.6'	S 9°34.7'	234°51.0'	S 16°55.6'	275°39.0'	S 23°46.1'
5	208°21.5'	S 16°31.8'	251°33.8'	S 16°31.8'	286°24.7'	S 16°19.2'	228°35.5'	S 9°34.5'	249°53.1'	S 16°55.5'	290°39.5'	S 23°46.0'
6	223°24.0'	S 16°31.1'	266°33.7'	S 16°31.1'	301°26.6'	S 16°19.3'	243°37.4'	S 9°34.2'	264°55.3'	S 16°55.4'	305°40.0'	S 23°45.9'
7	238°26.4'	S 16°30.4'	281°33.6'	S 16°30.4'	316°28.6'	S 16°19.4'	258°39.3'	S 9°34.0'	279°57.5'	S 16°55.3'	320°40.4'	S 23°45.9'
8	253°28.9'	S 16°29.6'	296°33.6'	S 16°29.6'	331°30.6'	S 16°19.5'	273°41.2'	S 9°33.8'	294°59.6'	S 16°55.2'	335°40.9'	S 23°45.8'
9	268°31.4'	S 16°28.9'	311°33.5'	S 16°28.9'	346°32.5'	S 16°19.6'	288°43.2'	S 9°33.6'	310°01.8'	S 16°55.2'	350°41.4'	S 23°45.7'
10	283°33.8'	S 16°28.2'	326°33.4'	S 16°28.2'	1°34.5'	S 16°19.7'	303°45.1'	S 9°33.4'	325°04.0'	S 16°55.1'	5°41.8'	S 23°45.7'
11	298°36.3'	S 16°27.4'	341°33.4'	S 16°27.4'	16°36.4'	S 16°19.8'	318°47.0'	S 9°33.2'	340°06.1'	S 16°55.0'	20°42.3'	S 23°45.6'
12	313°38.8'	S 16°26.7'	356°33.3'	S 16°26.7'	31°38.4'	S 16°19.8'	333°48.9'	S 9°32.9'	355°08.3'	S 16°54.9'	35°42.8'	S 23°45.5'
13	328°41.2'	S 16°25.9'	11°33.2'	S 16°25.9'	46°40.3'	S 16°19.9'	348°50.8'	S 9°32.7'	10°10.4'	S 16°54.8'	50°43.2'	S 23°45.5'
14	343°43.7'	S 16°25.2'	26°33.2'	S 16°25.2'	61°42.2'	S 16°20.0'	3°52.7'	S 9°32.5'	25°12.6'	S 16°54.7'	65°43.7'	S 23°45.4'
15	358°46.2'	S 16°24.5'	41°33.1'	S 16°24.5'	76°44.2'	S 16°20.1'	18°54.7'	S 9°32.3'	40°14.8'	S 16°54.6'	80°44.2'	S 23°45.3'
16	13°48.6'	S 16°23.7'	56°33.0'	S 16°23.7'	91°46.1'	S 16°20.2'	33°56.6'	S 9°32.1'	55°16.9'	S 16°54.5'	95°44.6'	S 23°45.2'
17	28°51.1'	S 16°23.0'	71°33.0'	S 16°23.0'	106°48.0'	S 16°20.3'	48°58.5'	S 9°31.9'	70°19.1'	S 16°54.5'	110°45.1'	S 23°45.2'
18	43°53.5'	S 16°22.2'	86°32.9'	S 16°22.2'	121°50.0'	S 16°20.4'	64°00.4'	S 9°31.6'	85°21.3'	S 16°54.4'	125°45.6'	S 23°45.1'
19	58°56.0'	S 16°21.5'	101°32.8'	S 16°21.5'	136°51.9'	S 16°20.5'	79°02.3'	S 9°31.4'	100°23.4'	S 16°54.3'	140°46.0'	S 23°45.0'
20	73°58.5'	S 16°20.7'	116°32.8'	S 16°20.7'	151°53.8'	S 16°20.6'	94°04.2'	S 9°31.2'	115°25.6'	S 16°54.2'	155°46.5'	S 23°45.0'
21	89°00.9'	S 16°20.0'	131°32.7'	S 16°20.0'	166°55.7'	S 16°20.7'	109°06.2'	S 9°31.0'	130°27.8'	S 16°54.1'	170°47.0'	S 23°44.9'
22	104°03.4'	S 16°19.3'	146°32.6'	S 16°19.3'	181°57.6'	S 16°20.8'	124°08.1'	S 9°30.8'	145°29.9'	S 16°54.0'	185°47.4'	S 23°44.8'
23	119°05.9'	S 16°18.5'	161°32.6'	S 16°18.5'	196°59.5'	S 16°20.9'	139°10.0'	S 9°30.6'	160°32.1'	S 16°53.9'	200°47.9'	S 23°44.7'
		SD 16.2' d 0.7'		v 1.9' d -0.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d 0.1'		
Mer. pass.		12 h 13 m 47 s		9 h 54 m		13 h 45 m		12 h 19 m		9 h 37 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sirius	-Adhara	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut
0	151°52.8'	S 13°16.6'	10.3'	13.8'	58.8'	113°47.7'	111°05.0'	108°57.8'	105°14.5'	95°27.7'	91°54.3'		
1	166°22.1'	S 13°02.8'	10.4'	13.8'	58.8'	113°24.3'	110°48.4'	108°24.7'	104°41.9'	94°58.2'	91°19.4'		
2	180°51.5'	S 12°49.0'	10.5'	13.9'	58.7'	113°00.9'	110°31.6'	107°51.7'	104°09.3'	94°28.7'	90°44.6'		
3	195°21.0'	S 12°35.1'	10.6'	13.9'	58.7'	112°37.4'	110°14.7'	107°18.7'	103°36.7'	93°59.3'	90°09.8'		
4	209°50.6'	S 12°21.2'	10.7'	14.0'	58.7'	112°13.8'	109°57.8'	106°45.7'	103°04.1'	93°29.8'	89°35.0'		
5	224°20.3'	S 12°07.2'	10.8'	14.0'	58.6'	111°50.3'	109°40.8'	106°12.8'	102°31.6'	93°00.4'	89°00.3'		
6	238°50.1'	S 11°53.2'	10.9'	14.1'	58.6'	111°26.6'	109°23.7'	105°39.8'	101°59.0'	92°31.1'	88°25.7'		
7	253°20.0'	S 11°39.1'	11.0'	14.1'	58.6'	111°02.9'	109°06.5'	105°06.9'	101°26.6'	92°01.7'	87°51.0'		
8	267°50.0'	S 11°25.0'	11.1'	14.1'	58.5'	110°39.2'	108°49.3'	104°34.1'	100°54.1'	91°32.4'	87°16.5'		
9	282°20.1'	S 11°10.9'	11.2'	14.2'	58.5'	110°15.5'	108°32.0'	104°01.2'	100°21.7'	91°03.2'	86°41.9'		
10	296°50.3'	S 10°56.7'	11.3'	14.2'	58.5'	109°51.7'	108°14.6'	103°28.4'	99°49.3'	90°33.9'	86°07.4'		18°39.6'
11	311°20.6'	S 10°42.5'	11.4'	14.3'	58.4'	109°27.8'	107°57.2'	102°55.7'	99°17.0'	90°04.7'	85°33.0'	7°24.9'	18°57.1'
12	325°50.9'	S 10°28.2'	11.5'	14.3'	58.4'	109°03.9'	107°39.7'	102°22.9'	98°44.7'	89°35.6'	84°58.6'	7°53.9'	19°15.4'
13	340°21.4'	S 10°13.9'	11.5'	14.3'	58.4'	108°40.0'	107°22.1'	101°50.3'	98°12.4'	89°06.4'	84°24.2'	8°23.5'	19°34.3'
14	354°51.9'	S 9°59.6'	11.6'	14.4'	58.3'	108°16.1'	107°04.5'	101°17.6'	97°40.1'	88°37.4'	83°49.9'	8°53.6'	19°53.9'
15	9°22.6'	S 9°45.2'	11.7'	14.4'	58.3'	107°52.1'	106°46.9'	100°45.0'	97°07.9'	88°08.3'	83°15.7'	9°24.1'	20°14.2'
16	23°53.3'	S 9°30.8'	11.8'	14.4'	58.2'	107°28.2'	106°29.1'	100°12.4'	96°35.7'	87°39.3'	82°41.4'	9°54.9'	20°35.0'
17	38°24.1'	S 9°16.4'	11.9'	14.5'	58.2'	107°04.1'	106°11.4'	99°39.8'	96°03.6'	87°10.3'	82°07.3'	10°26.0'	20°56.3'
18	52°55.0'	S 9°01.9'	12.0'	14.5'	58.2'	106°40.1'	105°53.5'	99°07.3'	95°31.5'	86°41.4'	81°33.1'	10°57.3'	21°18.2'
19	67°26.0'	S 8°47.4'	12.1'	14.5'	58.1'	106°16.0'	105°35.7'	98°34.8'	94°59.4'	86°12.6'	80°59.0'	11°28.8'	21°40.5'
20	81°57.0'	S 8°32.9'	12.1'	14.5'	58.1'	105°52.0'	105°17.8'	98°02.4'	94°27.4'	85°43.7'	80°25.0'	12°00.5'	22°03.3'
21	96°28.2'	S 8°18.4'	12.2'	14.6'	58.1'	105°27.9'	104°59.8'	97°29.9'	93°55.4'	85°14.9'	79°51.0'	12°32.3'	22°26.5'
22	110°59.4'	S 8°03.8'	12.3'	14.6'	58.0'	105°03.8'	104°41.8'	96°57.6'	93°23.5'	84°46.2'	79°17.0'	13°04.2'	22°50.2'
23	125°30.7'	S 7°49.3'	12.4'	14.6'	58.0'	104°39.7'	104°23.8'	96°25.2'	92°51.5'	84°17.5'	78°43.1'	13°36.2'	23°14.2'
Mer. pass.		14 h 21 m SD 16.0'		phase 4%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°07.0'	N 89°21.7'
Rigil Kent	-0.0	139°43.5'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.0'	S 16°44.9'				
Hadar	+0.6	148°39.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	134°08.3'	176°32.5'	S 16°17.8'	212°01.4'	S 16°21.0'	154°11.9'	S 9°30.3'	175°34.2'	S 16°53.9'	215°48.4'	S 23°44.7'			
1	149°10.8'	191°32.5'	S 16°17.0'	227°03.3'	S 16°21.0'	169°13.8'	S 9°30.1'	190°36.4'	S 16°53.8'	230°48.8'	S 23°44.6'			
2	164°13.3'	206°32.4'	S 16°16.3'	242°05.2'	S 16°21.1'	184°15.8'	S 9°29.9'	205°38.6'	S 16°53.7'	245°49.3'	S 23°44.5'			
3	179°15.7'	221°32.3'	S 16°15.5'	257°07.1'	S 16°21.2'	199°17.7'	S 9°29.7'	220°40.7'	S 16°53.6'	260°49.8'	S 23°44.4'			
4	194°18.2'	236°32.3'	S 16°14.8'	272°09.0'	S 16°21.3'	214°19.6'	S 9°29.5'	235°42.9'	S 16°53.5'	275°50.2'	S 23°44.4'			
5	209°20.6'	251°32.2'	S 16°14.0'	287°10.8'	S 16°21.4'	229°21.5'	S 9°29.2'	250°45.1'	S 16°53.4'	290°50.7'	S 23°44.3'			
6	224°23.1'	266°32.2'	S 16°13.3'	302°12.7'	S 16°21.5'	244°23.4'	S 9°29.0'	265°47.2'	S 16°53.3'	305°51.2'	S 23°44.2'			
7	239°25.6'	281°32.1'	S 16°12.5'	317°14.6'	S 16°21.6'	259°25.3'	S 9°28.8'	280°49.4'	S 16°53.2'	320°51.6'	S 23°44.1'			
8	254°28.0'	296°32.0'	S 16°11.8'	332°16.5'	S 16°21.7'	274°27.3'	S 9°28.6'	295°51.6'	S 16°53.2'	335°52.1'	S 23°44.0'			
9	269°30.5'	311°32.0'	S 16°11.0'	347°18.3'	S 16°21.8'	289°29.2'	S 9°28.4'	310°53.7'	S 16°53.1'	350°52.6'	S 23°44.0'			
10	284°33.0'	326°31.9'	S 16°10.3'	2°20.2'	S 16°21.9'	304°31.1'	S 9°28.2'	325°55.9'	S 16°53.0'	5°53.1'	S 23°43.9'			
11	299°35.4'	341°31.9'	S 16°09.5'	17°22.0'	S 16°22.0'	319°33.0'	S 9°27.9'	340°58.1'	S 16°52.9'	20°53.5'	S 23°43.8'			
12	314°37.9'	356°31.8'	S 16°08.8'	32°23.9'	S 16°22.1'	334°34.9'	S 9°27.7'	356°00.2'	S 16°52.8'	35°54.0'	S 23°43.7'			
13	329°40.4'	11°31.7'	S 16°08.0'	47°25.7'	S 16°22.2'	349°36.8'	S 9°27.5'	11°02.4'	S 16°52.7'	50°54.5'	S 23°43.6'			
14	344°42.8'	26°31.7'	S 16°07.3'	62°27.6'	S 16°22.3'	4°38.8'	S 9°27.3'	26°04.5'	S 16°52.6'	65°54.9'	S 23°43.6'			
15	359°45.3'	41°31.6'	S 16°06.5'	77°29.4'	S 16°22.4'	19°40.7'	S 9°27.1'	41°06.7'	S 16°52.6'	80°55.4'	S 23°43.5'			
16	14°47.8'	56°31.6'	S 16°05.8'	92°31.3'	S 16°22.5'	34°42.6'	S 9°26.8'	56°08.9'	S 16°52.5'	95°55.9'	S 23°43.4'			
17	29°50.2'	71°31.5'	S 16°05.0'	107°33.1'	S 16°22.6'	49°44.5'	S 9°26.6'	71°11.0'	S 16°52.4'	110°56.3'	S 23°43.3'			
18	44°52.7'	86°31.5'	S 16°04.3'	122°34.9'	S 16°22.7'	64°46.4'	S 9°26.4'	86°13.2'	S 16°52.3'	125°56.8'	S 23°43.2'			
19	59°55.1'	101°31.4'	S 16°03.5'	137°36.8'	S 16°22.8'	79°48.3'	S 9°26.2'	101°15.4'	S 16°52.2'	140°57.3'	S 23°43.2'			
20	74°57.6'	116°31.4'	S 16°02.8'	152°38.6'	S 16°22.9'	94°50.3'	S 9°26.0'	116°17.5'	S 16°52.1'	155°57.7'	S 23°43.1'			
21	90°00.1'	131°31.3'	S 16°02.0'	167°40.4'	S 16°23.0'	109°52.2'	S 9°25.8'	131°19.7'	S 16°52.0'	170°58.2'	S 23°43.0'			
22	105°02.5'	146°31.2'	S 16°01.3'	182°42.2'	S 16°23.1'	124°54.1'	S 9°25.5'	146°21.9'	S 16°51.9'	185°58.7'	S 23°42.9'			
23	120°05.0'	161°31.2'	S 16°00.5'	197°44.0'	S 16°23.2'	139°56.0'	S 9°25.3'	161°24.0'	S 16°51.9'	200°59.1'	S 23°42.8'			
		SD 16.2'	d 0.8'	v 1.9'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.1'			
Mer. pass.		12 h 13 m 53 s		9 h 51 m		13 h 41 m		12 h 16 m		9 h 36 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Sun
0	140°02.1'	S 7°34.7'	12.5'	14.6'	58.0'		95°52.9'	92°19.7'	83°48.9'	78°09.3'	14°08.2'	23°38.6'	
1	154°33.5'	S 7°20.1'	12.5'	14.6'	57.9'		95°20.7'	91°47.8'	83°20.3'	77°35.5'	14°40.4'	24°03.3'	
2	169°05.1'	S 7°05.5'	12.6'	14.6'	57.9'		94°48.5'	91°16.1'	82°51.7'	77°01.7'	15°12.5'	24°28.4'	
3	183°36.7'	S 6°50.8'	12.7'	14.7'	57.8'		94°16.3'	90°44.3'	82°23.2'	76°28.0'	15°44.7'	24°53.7'	
4	198°08.4'	S 6°36.2'	12.8'	14.7'	57.8'	119°57.1'	93°44.2'	90°12.6'	81°54.8'	75°54.3'	16°17.0'	25°19.3'	
5	212°40.1'	S 6°21.5'	12.8'	14.7'	57.8'	119°23.3'	93°12.1'	89°40.9'	81°26.4'	75°20.7'	16°49.3'	25°45.2'	
6	227°11.9'	S 6°06.8'	12.9'	14.7'	57.7'	118°49.5'	92°40.0'	89°09.3'	80°58.1'	74°47.1'	17°21.5'	26°11.3'	
7	241°43.8'	S 5°52.1'	13.0'	14.7'	57.7'	118°15.8'	92°08.0'	88°37.7'	80°29.8'	74°13.6'	17°53.8'	26°37.7'	40°19.6'
8	256°15.8'	S 5°37.4'	13.0'	14.7'	57.7'	117°42.1'	91°36.1'	88°06.2'	80°01.6'	73°40.1'	18°26.1'	27°04.3'	40°50.5'
9	270°47.8'	S 5°22.7'	13.1'	14.7'	57.6'	117°08.5'	91°04.1'	87°34.7'	79°33.4'	73°06.6'	18°58.5'	27°31.0'	41°21.4'
10	285°19.9'	S 5°08.0'	13.2'	14.7'	57.6'	116°34.9'	90°32.3'	87°03.3'	79°05.3'	72°33.2'	19°30.8'	27°58.0'	41°52.2'
11	299°52.0'	S 4°53.3'	13.2'	14.7'	57.6'	116°01.3'	90°00.4'	86°31.9'	78°37.2'	71°59.9'	20°03.0'	28°25.2'	42°23.0'
12	314°24.3'	S 4°38.6'	13.3'	14.7'	57.5'	115°27.8'	89°28.6'	86°00.5'	78°09.2'	71°26.6'	20°35.3'	28°52.5'	42°53.7'
13	328°56.6'	S 4°23.9'	13.3'	14.7'	57.5'	114°54.4'	88°56.9'	85°29.2'	77°41.3'	70°53.3'	21°07.6'	29°20.0'	43°24.4'
14	343°28.9'	S 4°09.2'	13.4'	14.7'	57.4'	114°21.0'	88°25.2'	84°57.9'	77°13.4'	70°20.1'	21°39.9'	29°47.6'	43°55.1'
15	358°01.3'	S 3°54.5'	13.5'	14.7'	57.4'	113°47.6'	87°53.5'	84°26.7'	76°45.6'	69°47.0'	22°12.1'	30°15.4'	44°25.7'
16	12°33.8'	S 3°39.8'	13.5'	14.7'	57.4'	113°14.3'	87°21.9'	83°55.6'	76°17.8'	69°13.9'	22°44.3'	30°43.3'	44°56.3'
17	27°06.3'	S 3°25.1'	13.6'	14.7'	57.3'	112°41.0'	86°50.3'	83°24.4'	75°50.1'	68°40.8'	23°16.6'	31°11.4'	45°26.9'
18	41°38.8'	S 3°10.3'	13.6'	14.7'	57.3'	112°07.8'	86°18.8'	82°53.4'	75°22.5'	68°07.8'	23°48.7'	31°39.5'	45°57.4'
19	56°11.5'	S 2°55.6'	13.7'	14.7'	57.3'	111°34.6'	85°47.3'	82°22.3'	74°54.9'	67°34.8'	24°20.9'	32°07.8'	46°27.8'
20	70°44.2'	S 2°41.0'	13.7'	14.7'	57.2'	111°01.5'	85°15.9'	81°51.3'	74°27.4'	67°01.9'	24°53.0'	32°36.1'	46°58.3'
21	85°16.9'	S 2°26.3'	13.8'	14.7'	57.2'	110°28.4'	84°44.5'	81°20.4'	74°00.0'	66°29.0'	25°25.1'	33°04.6'	47°28.7'
22	99°49.7'	S 2°11.6'	13.8'	14.7'	57.2'	109°55.3'	84°13.1'	80°49.5'	73°32.6'	65°56.2'	25°57.2'	33°33.1'	47°59.0'
23	114°22.5'	S 1°56.9'	13.9'	14.7'	57.1'	109°22.3'	83°41.8'	80°18.7'	73°05.3'	65°23.4'	26°29.3'	34°01.7'	48°29.3'
Mer. pass.		15 h 8 m SD 15.8'	phase 10%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.5'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.7'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°07.6'	N 89°21.7'
Rigel Kent	-0.0	139°43.5'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.1'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	136°06.6'	176°30.0'	S 15°41.5'	213°28.1'	S 16°25.7'	155°43.9'	S 9°19.8'	177°18.1'	S 16°49.7'	216°10.8'	S 23°40.6'	
1	151°09.1'	191°29.9'	S 15°40.7'	228°29.8'	S 16°25.8'	170°45.8'	S 9°19.6'	192°20.3'	S 16°49.6'	231°11.3'	S 23°40.5'	
2	166°11.5'	206°29.9'	S 15°39.9'	243°31.5'	S 16°25.9'	185°47.7'	S 9°19.4'	207°22.5'	S 16°49.5'	246°11.7'	S 23°40.4'	
3	181°14.0'	221°29.8'	S 15°39.1'	258°33.2'	S 16°26.0'	200°49.6'	S 9°19.2'	222°24.6'	S 16°49.4'	261°12.2'	S 23°40.3'	
4	196°16.5'	236°29.8'	S 15°38.4'	273°34.9'	S 16°26.1'	215°51.6'	S 9°19.0'	237°26.8'	S 16°49.3'	276°12.7'	S 23°40.2'	
5	211°18.9'	251°29.7'	S 15°37.6'	288°36.6'	S 16°26.2'	230°53.5'	S 9°18.7'	252°29.0'	S 16°49.2'	291°13.1'	S 23°40.1'	
6	226°21.4'	266°29.7'	S 15°36.8'	303°38.3'	S 16°26.3'	245°55.4'	S 9°18.5'	267°31.1'	S 16°49.2'	306°13.6'	S 23°40.0'	
7	241°23.9'	281°29.7'	S 15°36.1'	318°40.0'	S 16°26.4'	260°57.3'	S 9°18.3'	282°33.3'	S 16°49.1'	321°14.1'	S 23°39.9'	
8	256°26.3'	296°29.6'	S 15°35.3'	333°41.7'	S 16°26.5'	275°59.2'	S 9°18.1'	297°35.5'	S 16°49.0'	336°14.5'	S 23°39.8'	
9	271°28.8'	311°29.6'	S 15°34.5'	348°43.4'	S 16°26.6'	291°01.1'	S 9°17.9'	312°37.6'	S 16°48.9'	351°15.0'	S 23°39.7'	
10	286°31.2'	326°29.5'	S 15°33.8'	345.0'	S 16°26.7'	306°03.1'	S 9°17.7'	327°39.8'	S 16°48.8'	6°15.5'	S 23°39.6'	
11	301°33.7'	341°29.5'	S 15°33.0'	18°46.7'	S 16°26.8'	321°05.0'	S 9°17.4'	342°41.9'	S 16°48.7'	21°15.9'	S 23°39.5'	
12	316°36.2'	356°29.4'	S 15°32.2'	33°48.4'	S 16°26.9'	336°06.9'	S 9°17.2'	357°44.1'	S 16°48.6'	36°16.4'	S 23°39.4'	
13	331°38.6'	11°29.4'	S 15°31.4'	48°50.1'	S 16°27.0'	351°08.8'	S 9°17.0'	12°46.3'	S 16°48.5'	51°16.9'	S 23°39.3'	
14	346°41.1'	26°29.4'	S 15°30.7'	63°51.7'	S 16°27.1'	6°10.7'	S 9°16.8'	27°48.4'	S 16°48.5'	66°17.3'	S 23°39.2'	
15	1°43.6'	41°29.3'	S 15°29.9'	78°53.4'	S 16°27.2'	21°12.6'	S 9°16.6'	42°50.6'	S 16°48.4'	81°17.8'	S 23°39.1'	
16	16°46.0'	56°29.3'	S 15°29.1'	93°55.1'	S 16°27.3'	36°14.5'	S 9°16.3'	57°52.8'	S 16°48.3'	96°18.3'	S 23°39.0'	
17	31°48.5'	71°29.2'	S 15°28.3'	108°56.7'	S 16°27.5'	51°16.5'	S 9°16.1'	72°54.9'	S 16°48.2'	111°18.7'	S 23°38.9'	
18	46°51.0'	86°29.2'	S 15°27.6'	123°58.4'	S 16°27.6'	66°18.4'	S 9°15.9'	87°57.1'	S 16°48.1'	126°19.2'	S 23°38.8'	
19	61°53.4'	101°29.2'	S 15°26.8'	139°00.0'	S 16°27.7'	81°20.3'	S 9°15.7'	102°59.3'	S 16°48.0'	141°19.7'	S 23°38.7'	
20	76°55.9'	116°29.1'	S 15°26.0'	154°01.7'	S 16°27.8'	96°22.2'	S 9°15.5'	118°01.4'	S 16°47.9'	156°20.1'	S 23°38.6'	
21	91°58.3'	131°29.1'	S 15°25.2'	169°03.3'	S 16°27.9'	111°24.1'	S 9°15.2'	133°03.6'	S 16°47.9'	171°20.6'	S 23°38.5'	
22	107°00.8'	146°29.1'	S 15°24.4'	184°04.9'	S 16°28.0'	126°26.0'	S 9°15.0'	148°05.8'	S 16°47.8'	186°21.5'	S 23°38.4'	
23	122°03.3'	161°29.0'	S 15°23.7'	199°06.6'	S 16°28.1'	141°27.9'	S 9°14.8'	163°07.9'	S 16°47.7'	201°21.5'	S 23°38.3'	
		SD 16.2'	d 0.8'		v 1.7'	d -0.1'		v 1.9'	d 0.2'		v 2.2'	d 0.1'
Mer. pass.		12 h 14 m 2 s		9 h 45 m		13 h 35 m		12 h 9 m		9 h 35 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Procyon	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Sun
0	118°16.1'	N 4°03.6'	14.7'	14.1'	56.2'	96°51.5'	70°54.6'	67°44.1'	62°06.9'	51°58.6'	39°39.8'	46°12.3'	60°53.5'
1	132°49.9'	N 4°17.7'	14.7'	14.0'	56.2'	96°21.6'	70°24.5'	67°14.6'	61°41.6'	51°27.0'	40°11.0'	46°41.8'	61°22.7'
2	147°23.6'	N 4°31.7'	14.8'	14.0'	56.2'	95°51.7'	69°54.5'	66°45.1'	61°16.4'	50°55.5'	40°42.1'	47°11.3'	61°51.9'
3	161°57.4'	N 4°45.7'	14.8'	14.0'	56.1'	95°21.9'	69°24.6'	66°15.7'	60°51.4'	50°24.0'	41°13.2'	47°40.8'	62°21.1'
4	176°31.1'	N 4°59.6'	14.8'	13.9'	56.1'	94°52.0'	68°54.6'	65°46.4'	60°26.4'	49°52.5'	41°44.3'	48°10.3'	62°50.3'
5	191°04.9'	N 5°13.6'	14.8'	13.9'	56.1'	94°22.3'	68°24.8'	65°17.1'	60°01.5'	49°21.1'	42°15.3'	48°39.8'	63°19.4'
6	205°38.7'	N 5°27.4'	14.8'	13.8'	56.0'	93°52.5'	67°55.0'	64°47.9'	59°36.7'	48°49.7'	42°46.3'	49°09.3'	63°48.4'
7	220°12.5'	N 5°41.3'	14.8'	13.8'	56.0'	93°22.8'	67°25.2'	64°18.7'	59°12.0'	48°18.4'	43°17.2'	49°38.9'	64°17.4'
8	234°46.3'	N 5°55.1'	14.8'	13.8'	56.0'	92°53.1'	66°55.5'	63°49.6'	58°47.4'	47°47.1'	43°48.1'	50°08.4'	64°46.4'
9	249°20.2'	N 6°08.9'	14.8'	13.7'	56.0'	92°23.4'	66°25.9'	63°20.6'	58°22.9'	47°15.8'	44°19.0'	50°37.8'	65°15.4'
10	263°54.0'	N 6°22.6'	14.9'	13.7'	55.9'	91°53.8'	65°56.2'	62°51.6'	57°58.5'	46°44.6'	44°49.9'	51°07.3'	65°44.3'
11	278°27.9'	N 6°36.2'	14.9'	13.6'	55.9'	91°24.2'	65°26.7'	62°22.7'	57°34.2'	46°13.5'	45°20.7'	51°36.8'	66°13.2'
12	293°01.7'	N 6°49.9'	14.9'	13.6'	55.9'	90°54.7'	64°57.2'	61°53.8'	57°10.0'	45°42.4'	45°51.5'	52°06.3'	66°42.0'
13	307°35.6'	N 7°03.5'	14.9'	13.5'	55.8'	90°25.1'	64°27.7'	61°25.0'	56°45.9'	45°11.3'	46°22.2'	52°35.8'	67°10.8'
14	322°09.5'	N 7°17.0'	14.9'	13.5'	55.8'	89°55.7'	63°58.3'	60°56.2'	56°21.9'	44°40.2'	46°52.9'	53°05.3'	67°39.6'
15	336°43.3'	N 7°30.5'	14.9'	13.5'	55.8'	89°26.2'	63°29.0'	60°27.5'	55°58.1'	44°09.3'	47°23.6'	53°34.7'	68°08.3'
16	351°17.2'	N 7°44.0'	14.9'	13.4'	55.7'	88°56.8'	62°59.7'	59°58.9'	55°34.3'	43°38.3'	47°54.2'	54°04.2'	68°37.0'
17	5°51.1'	N 7°57.4'	14.9'	13.4'	55.7'	88°27.4'	62°30.4'	59°30.3'	55°10.6'	43°07.4'	48°24.8'	54°33.6'	69°05.7'
18	20°25.0'	N 8°10.7'	14.9'	13.3'	55.7'	87°58.0'	62°01.2'	59°01.8'	54°47.1'	42°36.6'	48°55.4'	55°03.0'	69°34.3'
19	34°58.9'	N 8°24.0'	14.9'	13.3'	55.6'	87°28.7'	61°32.1'	58°33.3'	54°23.7'	42°05.7'	49°25.9'	55°32.5'	70°02.9'
20	49°32.7'	N 8°37.3'	14.9'	13.2'	55.6'	86°59.5'	61°03.0'	58°04.9'	54°00.4'	41°35.0'	49°56.5'	56°01.9'	70°31.4'
21	64°06.6'	N 8°50.5'	14.9'	13.2'	55.6'	86°30.2'	60°34.0'	57°36.6'	53°37.2'	41°04.3'	50°26.9'	56°31.3'	70°60.0'
22	78°40.5'	N 9°03.7'	14.9'	13.1'	55.6'	86°01.0'	60°05.0'	57°08.3'	53°14.1'	40°33.6'	50°57.4'	57°00.7'	71°28.5'
23	93°14.4'	N 9°16.8'	14.9'	13.1'	55.5'	85°31.8'	59°36.1'	56°40.1'	52°51.2'	40°02.9'	51°27.8'	57°30.0'	71°56.9'
Mer. pass.		16 h 36 m SD 15.3'		phase 26%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.1'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°08.6'	N 89°21.7'
Rigel Kent	-0.0	139°43.5'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	137°05.7'		176°29.0'	S 15°22.9'	214°08.2'	S 16°28.2'	156°29.9'	S 9°14.6'	178°10.1'	S 16°47.6'	216°22.0'	S 23°38.2'
1	152°08.2'		191°28.9'	S 15°22.1'	229°09.8'	S 16°28.3'	171°31.8'	S 9°14.4'	193°12.2'	S 16°47.5'	231°22.5'	S 23°38.1'
2	167°10.7'		206°28.9'	S 15°21.3'	244°11.5'	S 16°28.4'	186°33.7'	S 9°14.1'	208°14.4'	S 16°47.4'	246°22.9'	S 23°38.0'
3	182°13.1'		221°28.9'	S 15°20.6'	259°13.1'	S 16°28.5'	201°35.6'	S 9°13.9'	223°16.6'	S 16°47.3'	261°23.4'	S 23°37.8'
4	197°15.6'		236°28.8'	S 15°19.8'	274°14.7'	S 16°28.6'	216°37.5'	S 9°13.7'	238°18.7'	S 16°47.2'	276°23.9'	S 23°37.7'
5	212°18.1'		251°28.8'	S 15°19.0'	289°16.3'	S 16°28.7'	231°39.4'	S 9°13.5'	253°20.9'	S 16°47.2'	291°24.3'	S 23°37.6'
6	227°20.5'		266°28.8'	S 15°18.2'	304°17.9'	S 16°28.8'	246°41.3'	S 9°13.3'	268°23.1'	S 16°47.1'	306°24.8'	S 23°37.5'
7	242°23.0'		281°28.7'	S 15°17.4'	319°19.5'	S 16°28.9'	261°43.2'	S 9°13.0'	283°25.2'	S 16°47.0'	321°25.3'	S 23°37.4'
8	257°25.5'		296°28.7'	S 15°16.6'	334°21.1'	S 16°29.0'	276°45.2'	S 9°12.8'	298°27.4'	S 16°46.9'	336°25.7'	S 23°37.3'
9	272°27.9'		311°28.7'	S 15°15.9'	349°22.7'	S 16°29.1'	291°47.1'	S 9°12.6'	313°29.6'	S 16°46.8'	351°26.2'	S 23°37.2'
10	287°30.4'		326°28.6'	S 15°15.1'	4°24.3'	S 16°29.2'	306°49.0'	S 9°12.4'	328°31.7'	S 16°46.7'	6°26.7'	S 23°37.1'
11	302°32.8'		341°28.6'	S 15°14.3'	19°25.9'	S 16°29.4'	321°50.9'	S 9°12.1'	343°33.9'	S 16°46.6'	21°27.1'	S 23°37.0'
12	317°35.3'		356°28.6'	S 15°13.5'	34°27.5'	S 16°29.5'	336°52.8'	S 9°11.9'	358°36.1'	S 16°46.5'	36°27.6'	S 23°36.9'
13	332°37.8'		11°28.5'	S 15°12.7'	49°29.1'	S 16°29.6'	351°54.7'	S 9°11.7'	13°38.2'	S 16°46.5'	51°28.1'	S 23°36.8'
14	347°40.2'		26°28.5'	S 15°11.9'	64°30.7'	S 16°29.7'	6°56.6'	S 9°11.5'	28°40.4'	S 16°46.4'	66°28.5'	S 23°36.6'
15	2°42.7'		41°28.5'	S 15°11.2'	79°32.2'	S 16°29.8'	21°58.6'	S 9°11.3'	43°42.6'	S 16°46.3'	81°29.0'	S 23°36.5'
16	17°45.2'		56°28.4'	S 15°10.4'	94°33.8'	S 16°29.9'	37°00.5'	S 9°11.0'	58°44.7'	S 16°46.2'	96°29.5'	S 23°36.4'
17	32°47.6'		71°28.4'	S 15°09.6'	109°35.4'	S 16°30.0'	52°02.4'	S 9°10.8'	73°46.9'	S 16°46.1'	111°29.9'	S 23°36.3'
18	47°50.1'		86°28.4'	S 15°08.8'	124°37.0'	S 16°30.1'	67°04.3'	S 9°10.6'	88°49.0'	S 16°46.0'	126°30.4'	S 23°36.2'
19	62°52.6'		101°28.4'	S 15°08.0'	139°38.5'	S 16°30.2'	82°06.2'	S 9°10.4'	103°51.2'	S 16°45.9'	141°30.9'	S 23°36.1'
20	77°55.0'		116°28.3'	S 15°07.2'	154°40.1'	S 16°30.3'	97°08.1'	S 9°10.2'	118°53.4'	S 16°45.8'	156°31.3'	S 23°36.0'
21	92°57.5'		131°28.3'	S 15°06.4'	169°41.6'	S 16°30.4'	112°10.0'	S 9°09.9'	133°55.5'	S 16°45.8'	171°31.8'	S 23°35.9'
22	107°59.9'		146°28.3'	S 15°05.6'	184°43.2'	S 16°30.5'	127°11.9'	S 9°09.7'	148°57.7'	S 16°45.7'	186°32.3'	S 23°35.7'
23	123°02.4'		161°28.2'	S 15°04.9'	199°44.8'	S 16°30.6'	142°13.9'	S 9°09.5'	163°59.9'	S 16°45.6'	201°32.8'	S 23°35.6'
			SD 16.2'	d 0.8'	v 1.6'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.1'
Mer. pass.			12 h 14 m 6 s		9 h 42 m		13 h 32 m		12 h 6 m		9 h 34 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Jupiter	+Fomalhaut	+Achernar	+Sun
0	107°48.2'	N 9°29.9'	14.9'	13.0'	55.5'	59°07.2'	56°11.9'	52°28.3'	39°32.3'	51°58.2'	57°59.4'		72°25.4'
1	122°22.1'	N 9°42.9'	14.9'	13.0'	55.5'	58°38.4'	55°43.8'	52°05.6'	39°01.8'	52°28.5'	58°28.8'		72°53.7'
2	136°56.0'	N 9°55.8'	14.8'	12.9'	55.4'	58°09.6'	55°15.8'	51°43.0'	38°31.3'	52°58.8'	58°58.1'		73°22.1'
3	151°29.8'	N 10°08.7'	14.8'	12.8'	55.4'	57°40.9'	54°47.9'	51°20.6'	38°00.8'	53°29.1'	59°27.4'		73°50.4'
4	166°03.6'	N 10°21.6'	14.8'	12.8'	55.4'	57°12.2'	54°20.0'	50°58.3'	37°30.4'	53°59.4'	59°56.7'		74°18.7'
5	180°37.5'	N 10°34.3'	14.8'	12.7'	55.4'	56°43.6'	53°52.2'	50°36.1'	36°60.0'	54°29.6'	60°26.0'		74°47.0'
6	195°11.3'	N 10°47.1'	14.8'	12.7'	55.3'	56°15.1'	53°24.4'	50°14.0'	36°29.7'	54°59.8'	60°55.3'		75°15.2'
7	209°45.1'	N 10°59.8'	14.8'	12.6'	55.3'	55°46.6'	52°56.7'	49°52.1'	35°59.4'	55°30.0'	61°24.6'		75°43.5'
8	224°18.9'	N 11°12.4'	14.8'	12.6'	55.3'	55°18.1'	52°29.1'	49°30.3'	35°29.1'	56°00.1'	61°53.9'		76°11.6'
9	238°52.7'	N 11°24.9'	14.8'	12.5'	55.3'	54°49.8'	52°01.6'	49°08.7'	34°58.9'	56°30.2'	62°23.1'	68°56.7'	76°39.8'
10	253°26.5'	N 11°37.4'	14.8'	12.4'	55.2'	54°21.4'	51°34.1'	48°47.2'	34°28.8'	57°00.3'	62°52.3'	69°11.8'	77°07.9'
11	268°00.2'	N 11°49.9'	14.7'	12.4'	55.2'	53°53.2'	51°06.7'	48°25.8'	33°58.7'	57°30.3'	63°21.5'	69°26.9'	77°36.0'
12	282°33.9'	N 12°02.3'	14.7'	12.3'	55.2'	53°25.0'	50°39.3'	48°04.6'	33°28.6'	58°00.4'	63°50.7'	69°42.1'	78°04.0'
13	297°07.7'	N 12°14.6'	14.7'	12.3'	55.2'	52°56.8'	50°12.1'	47°43.6'	32°58.6'	58°30.3'	64°19.9'	69°57.4'	78°32.1'
14	311°41.4'	N 12°26.9'	14.7'	12.2'	55.1'	52°28.7'	49°44.9'	47°22.7'	32°28.6'	59°00.3'	64°49.1'	70°12.7'	79°00.1'
15	326°15.1'	N 12°39.1'	14.7'	12.1'	55.1'	52°00.7'	49°17.8'	47°01.9'	31°58.7'	59°30.3'	65°18.3'	70°28.0'	79°28.0'
16	340°48.7'	N 12°51.2'	14.6'	12.1'	55.1'	51°32.7'	48°50.7'	46°41.3'	31°28.8'	60°00.2'	65°47.4'	70°43.5'	79°56.0'
17	355°22.4'	N 13°03.3'	14.6'	12.0'	55.1'	51°04.8'	48°23.8'	46°20.9'	30°59.0'	60°30.1'	66°16.5'	70°59.0'	80°23.9'
18	9°56.0'	N 13°15.3'	14.6'	11.9'	55.0'	50°37.0'	47°56.9'	46°00.6'	30°29.2'	60°59.9'	66°45.6'	71°14.5'	80°51.8'
19	24°29.6'	N 13°27.2'	14.6'	11.9'	55.0'	50°09.2'	47°30.1'	45°40.5'	29°59.5'	61°29.7'	67°14.7'	71°30.1'	81°19.7'
20	39°03.2'	N 13°39.1'	14.6'	11.8'	55.0'	49°41.5'	47°03.4'	45°20.6'	29°29.8'	61°59.5'	67°43.8'	71°45.7'	81°47.5'
21	53°36.7'	N 13°50.9'	14.5'	11.7'	55.0'	49°13.9'	46°36.7'	45°00.8'	29°00.1'	62°29.3'	68°12.9'	72°01.4'	82°15.3'
22	68°10.3'	N 14°02.7'	14.5'	11.7'	54.9'	48°46.3'	46°10.2'	44°41.2'	28°30.6'	62°59.1'	68°41.9'	72°17.2'	82°43.1'
23	82°43.8'	N 14°14.3'	14.5'	11.6'	54.9'	48°18.7'	45°43.7'	44°21.8'	28°01.0'	63°28.8'	69°11.0'	72°33.0'	83°10.9'
Mer. pass.			17 h 19 m	SD 15.1'	phase 35%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.6'	Spica	+1.0	158°24.7'	S 11°16.6'	Betelgeuse	+0.5	270°54.4'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.3'	S 63°13.0'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.5'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°09.1'	N 89°21.7'
Rigel Kent	-0.0	139°43.5'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.2'	S 57°07.9'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.2'	S 60°28.4'	Canopus	-0.6	263°53.0'	S 52°42.6'				

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Table with columns for planets: Aries, Sun, Venus, Jupiter, Saturn, Mars. Rows show coordinates (GHA, dec) and meridian passage times for each planet.

Table with columns for Moon and Lunar distance. Rows show Moon coordinates (GHA, dec, v, d, HP) and distances to various stars like Betelgeuse, Capella, Rigel, Aldebaran, Jupiter, Fomalhaut, Achernar, and Sun.

Table with columns for Star, mag, SHA, dec. Rows list various stars including Fomalhaut, Deneb, Altair, Vega, Antares, Rigel Kent, Arcturus, Hadar, Spica, Acrux, Regulus, Pollux, Procyon, Adhara, Sirius, Canopus, Betelgeuse, Capella, Rigel, Aldebaran, Polaris, and Achernar.

Table with columns for planets: Aries, Sun, Venus, Jupiter, Saturn, Mars. Columns include GHA, dec, and Mer. pass.

Table with columns for Moon and Lunar distance. Columns include GHA, dec, v, d, HP, and various star names like Pollux, Betelgeuse, Capella, Aldebaran, Jupiter, Achernar, Fomalhaut, Sun.

Table comparing star data: Star, mag, SHA, dec for Fomalhaut, Deneb, Altair, Vega, Antares, Rigil Kent, Arcturus, Hadar, Spica, Acrux, Regulus, Pollux, Procyon, Adhara, Sirius, Canopus, Betelgeuse, Capella, Rigel, Aldebaran, Polaris, Achernar.

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	140°03.2'	176°27.3'	S 14°25.7'	215°56.6'	S 16°35.9'	158°47.5'	S 8°58.6'	180°46.0'	S 16°41.3'	216°55.6'	S 23°29.5'	
1	155°05.6'	191°27.3'	S 14°24.9'	230°58.0'	S 16°36.0'	173°49.5'	S 8°58.4'	195°48.1'	S 16°41.2'	231°56.1'	S 23°29.4'	
2	170°08.1'	206°27.3'	S 14°24.0'	245°59.4'	S 16°36.1'	188°51.4'	S 8°58.2'	210°50.3'	S 16°41.1'	246°56.6'	S 23°29.2'	
3	185°10.5'	221°27.2'	S 14°23.2'	261°00.8'	S 16°36.2'	203°53.3'	S 8°58.0'	225°52.4'	S 16°41.0'	261°57.0'	S 23°29.1'	
4	200°13.0'	236°27.2'	S 14°22.4'	276°02.1'	S 16°36.3'	218°55.2'	S 8°57.8'	240°54.6'	S 16°41.0'	276°57.5'	S 23°29.0'	
5	215°15.5'	251°27.2'	S 14°21.6'	291°03.5'	S 16°36.4'	233°57.1'	S 8°57.5'	255°56.8'	S 16°40.9'	291°58.0'	S 23°28.8'	
6	230°17.9'	266°27.2'	S 14°20.8'	306°04.9'	S 16°36.5'	248°59.0'	S 8°57.3'	270°58.9'	S 16°40.8'	306°58.4'	S 23°28.7'	
7	245°20.4'	281°27.2'	S 14°20.0'	321°06.2'	S 16°36.6'	264°00.9'	S 8°57.1'	286°01.1'	S 16°40.7'	321°58.9'	S 23°28.5'	
8	260°22.9'	296°27.2'	S 14°19.2'	336°07.6'	S 16°36.8'	279°02.8'	S 8°56.9'	301°03.3'	S 16°40.6'	336°59.4'	S 23°28.4'	
9	275°25.3'	311°27.2'	S 14°18.4'	351°09.0'	S 16°36.9'	294°04.7'	S 8°56.6'	316°05.4'	S 16°40.5'	351°59.8'	S 23°28.3'	
10	290°27.8'	326°27.2'	S 14°17.5'	6°10.3'	S 16°37.0'	309°06.7'	S 8°56.4'	331°07.6'	S 16°40.4'	7°00.3'	S 23°28.1'	
11	305°30.3'	341°27.2'	S 14°16.7'	21°11.7'	S 16°37.1'	324°08.6'	S 8°56.2'	346°09.8'	S 16°40.3'	22°00.8'	S 23°28.0'	
12	320°32.7'	356°27.2'	S 14°15.9'	36°13.0'	S 16°37.2'	339°10.5'	S 8°56.0'	1°11.9'	S 16°40.3'	37°01.2'	S 23°27.8'	
13	335°35.2'	11°27.2'	S 14°15.1'	51°14.4'	S 16°37.3'	354°12.4'	S 8°55.7'	16°14.1'	S 16°40.2'	52°01.7'	S 23°27.7'	
14	350°37.7'	26°27.2'	S 14°14.3'	66°15.7'	S 16°37.4'	9°14.3'	S 8°55.5'	31°16.3'	S 16°40.1'	67°02.2'	S 23°27.6'	
15	5°40.1'	41°27.1'	S 14°13.5'	81°17.0'	S 16°37.5'	24°16.2'	S 8°55.3'	46°18.4'	S 16°40.0'	82°02.6'	S 23°27.4'	
16	20°42.6'	56°27.1'	S 14°12.7'	96°18.4'	S 16°37.6'	39°18.1'	S 8°55.1'	61°20.6'	S 16°39.9'	97°03.1'	S 23°27.3'	
17	35°45.0'	71°27.1'	S 14°11.8'	111°19.7'	S 16°37.7'	54°20.0'	S 8°54.9'	76°22.8'	S 16°39.8'	112°03.6'	S 23°27.1'	
18	50°47.5'	86°27.1'	S 14°11.0'	126°21.0'	S 16°37.8'	69°21.9'	S 8°54.6'	91°24.9'	S 16°39.7'	127°04.0'	S 23°27.0'	
19	65°50.0'	101°27.1'	S 14°10.2'	141°22.4'	S 16°37.9'	84°23.8'	S 8°54.4'	106°27.1'	S 16°39.6'	142°04.5'	S 23°26.8'	
20	80°52.4'	116°27.1'	S 14°09.4'	156°23.7'	S 16°38.0'	99°25.8'	S 8°54.2'	121°29.3'	S 16°39.6'	157°05.0'	S 23°26.7'	
21	95°54.9'	131°27.1'	S 14°08.6'	171°25.0'	S 16°38.1'	114°27.7'	S 8°54.0'	136°31.4'	S 16°39.5'	172°05.4'	S 23°26.6'	
22	110°57.4'	146°27.1'	S 14°07.7'	186°26.3'	S 16°38.2'	129°29.6'	S 8°53.7'	151°33.6'	S 16°39.4'	187°05.9'	S 23°26.4'	
23	125°59.8'	161°27.1'	S 14°06.9'	201°27.7'	S 16°38.3'	144°31.5'	S 8°53.5'	166°35.8'	S 16°39.3'	202°06.4'	S 23°26.3'	
		SD 16.2'	d 0.8'	v 1.3'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.1'	
Mer. pass.		12 h 14 m 11 s		9 h 35 m		13 h 23 m		11 h 55 m		9 h 32 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Pollux	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Jupiter	+Fomalhaut	+Sun
0	75°21.8'	N 22°11.1'	12.5'	7.5'	54.2'	47°05.5'	27°45.6'	26°44.0'		86°07.8'	87°22.7'	92°37.5'	105°27.8'
1	89°53.3'	N 22°18.6'	12.5'	7.4'	54.2'	46°35.9'	27°24.1'	26°25.9'		86°25.0'	87°51.7'	93°05.9'	105°54.7'
2	104°24.7'	N 22°26.0'	12.4'	7.3'	54.2'	46°06.4'	27°02.9'	26°08.1'		86°42.1'	88°20.6'	93°34.4'	106°21.7'
3	118°56.2'	N 22°33.3'	12.4'	7.2'	54.2'	45°36.8'	26°41.9'	25°50.6'		86°59.2'	88°49.6'	94°02.8'	106°48.6'
4	133°27.5'	N 22°40.5'	12.3'	7.1'	54.2'	45°07.3'	26°21.2'	25°33.5'		87°16.3'	89°18.5'	94°31.2'	107°15.5'
5	147°58.9'	N 22°47.6'	12.3'	7.0'	54.2'	44°37.8'	26°00.7'	25°16.7'		87°33.4'	89°47.4'	94°59.6'	107°42.5'
6	162°30.1'	N 22°54.6'	12.2'	6.9'	54.1'	44°08.2'	25°40.6'	25°00.3'		87°50.6'	90°16.3'	95°28.1'	108°09.4'
7	177°01.4'	N 23°01.5'	12.2'	6.8'	54.1'	43°38.7'	25°20.7'	24°44.3'		88°07.7'	90°45.2'	95°56.5'	108°36.3'
8	191°32.5'	N 23°08.3'	12.1'	6.7'	54.1'	43°09.2'	25°01.1'	24°28.7'		88°24.8'	91°14.2'	96°24.8'	109°03.2'
9	206°03.7'	N 23°15.0'	12.1'	6.6'	54.1'	42°39.7'	24°41.8'			88°42.0'	91°43.1'	96°53.2'	109°30.1'
10	220°34.8'	N 23°21.6'	12.0'	6.5'	54.1'	42°10.2'	24°22.9'			88°59.1'	92°12.0'	97°21.6'	109°57.0'
11	235°05.8'	N 23°28.1'	12.0'	6.4'	54.1'	41°40.7'	24°04.3'			89°16.3'	92°40.9'	97°50.0'	110°23.9'
12	249°36.8'	N 23°34.4'	11.9'	6.3'	54.1'	41°11.2'	23°46.0'			89°33.4'	93°09.8'	98°18.4'	110°50.8'
13	264°07.7'	N 23°40.7'	11.9'	6.2'	54.1'	40°41.7'	23°28.1'			89°50.6'	93°38.7'	98°46.7'	111°17.7'
14	278°38.6'	N 23°46.9'	11.8'	6.1'	54.1'	40°12.2'	23°10.6'			90°07.7'	94°07.5'	99°15.1'	111°44.6'
15	293°09.5'	N 23°52.9'	11.8'	5.9'	54.1'	39°42.8'	22°53.4'			90°24.8'	94°36.4'	99°43.4'	112°11.5'
16	307°40.3'	N 23°58.9'	11.8'	5.8'	54.1'	39°13.3'	22°36.7'			90°42.0'	95°05.3'	100°11.8'	112°38.4'
17	322°11.0'	N 24°04.7'	11.7'	5.7'	54.1'	38°43.8'	22°20.4'			90°59.1'	95°34.2'	100°40.1'	113°05.3'
18	336°41.7'	N 24°10.4'	11.7'	5.6'	54.1'	38°14.3'	22°04.5'			91°16.2'	96°03.1'	101°08.5'	113°32.2'
19	351°12.4'	N 24°16.0'	11.6'	5.5'	54.1'	37°44.9'			9°11.3'	91°33.4'	96°32.0'	101°36.8'	113°59.1'
20	5°43.0'	N 24°21.5'	11.6'	5.4'	54.1'	37°15.4'			9°32.5'	91°50.5'	97°00.8'	102°05.1'	114°25.9'
21	20°13.5'	N 24°26.9'	11.5'	5.3'	54.1'	36°45.9'			9°54.4'	92°07.6'	97°29.7'	102°33.5'	114°52.8'
22	34°44.1'	N 24°32.2'	11.5'	5.2'	54.1'	36°16.5'			10°16.9'	92°24.7'	97°58.6'	103°01.8'	115°19.7'
23	49°14.5'	N 24°37.4'	11.4'	5.1'	54.1'	35°47.0'			10°40.0'	92°41.8'	98°27.5'	103°30.1'	115°46.6'
Mer. pass.		19 h 36 m SD 14.8'		phase 63%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.7'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.2'	S 63°13.0'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.2'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°10.5'	N 89°21.7'
Rigil Kent	-0.0	139°43.4'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.2'	S 60°28.5'	Canopus	-0.6	263°53.0'	S 52°42.7'				

Friday 11 February 2022 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	141°02.3'		176°27.1'	S 14°06.1'	216°29.0'	S 16°38.4'	159°33.4'	S 8°53.3'	181°37.9'	S 16°39.2'	217°06.8'	S 23°26.1'
1	156°04.8'		191°27.1'	S 14°05.3'	231°30.3'	S 16°38.5'	174°35.3'	S 8°53.1'	196°40.1'	S 16°39.1'	232°07.3'	S 23°26.0'
2	171°07.2'		206°27.1'	S 14°04.5'	246°31.6'	S 16°38.7'	189°37.2'	S 8°52.8'	211°42.3'	S 16°39.0'	247°07.8'	S 23°25.8'
3	186°09.7'		221°27.1'	S 14°03.6'	261°32.9'	S 16°38.8'	204°39.1'	S 8°52.6'	226°44.4'	S 16°38.9'	262°08.2'	S 23°25.7'
4	201°12.2'		236°27.1'	S 14°02.8'	276°34.2'	S 16°38.9'	219°41.0'	S 8°52.4'	241°46.6'	S 16°38.9'	277°08.7'	S 23°25.5'
5	216°14.6'		251°27.1'	S 14°02.0'	291°35.5'	S 16°39.0'	234°42.9'	S 8°52.2'	256°48.8'	S 16°38.8'	292°09.2'	S 23°25.4'
6	231°17.1'		266°27.1'	S 14°01.2'	306°36.8'	S 16°39.1'	249°44.9'	S 8°52.0'	271°50.9'	S 16°38.7'	307°09.6'	S 23°25.2'
7	246°19.5'		281°27.1'	S 14°00.4'	321°38.1'	S 16°39.2'	264°46.8'	S 8°51.7'	286°53.1'	S 16°38.6'	322°10.1'	S 23°25.1'
8	261°22.0'		296°27.1'	S 13°59.5'	336°39.3'	S 16°39.3'	279°48.7'	S 8°51.5'	301°55.3'	S 16°38.5'	337°10.6'	S 23°25.0'
9	276°24.5'		311°27.1'	S 13°58.7'	351°40.6'	S 16°39.4'	294°50.6'	S 8°51.3'	316°57.4'	S 16°38.4'	352°11.0'	S 23°24.8'
10	291°26.9'		326°27.1'	S 13°57.9'	6°41.9'	S 16°39.5'	309°52.5'	S 8°51.1'	331°59.6'	S 16°38.3'	7°11.5'	S 23°24.7'
11	306°29.4'		341°27.1'	S 13°57.1'	21°43.2'	S 16°39.6'	324°54.4'	S 8°50.8'	347°01.7'	S 16°38.2'	22°12.0'	S 23°24.5'
12	321°31.9'		356°27.1'	S 13°56.2'	36°44.5'	S 16°39.7'	339°56.3'	S 8°50.6'	2°03.9'	S 16°38.2'	37°12.4'	S 23°24.4'
13	336°34.3'		11°27.1'	S 13°55.4'	51°45.7'	S 16°39.8'	354°58.2'	S 8°50.4'	17°06.1'	S 16°38.1'	52°12.9'	S 23°24.2'
14	351°36.8'		26°27.1'	S 13°54.6'	66°47.0'	S 16°39.9'	10°00.1'	S 8°50.2'	32°08.2'	S 16°38.0'	67°13.4'	S 23°24.1'
15	6°39.3'		41°27.1'	S 13°53.8'	81°48.3'	S 16°40.0'	25°02.0'	S 8°49.9'	47°10.4'	S 16°37.9'	82°13.8'	S 23°23.9'
16	21°41.7'		56°27.1'	S 13°52.9'	96°49.5'	S 16°40.1'	40°03.9'	S 8°49.7'	62°12.6'	S 16°37.8'	97°14.3'	S 23°23.7'
17	36°44.2'		71°27.1'	S 13°52.1'	111°50.8'	S 16°40.2'	55°05.9'	S 8°49.5'	77°14.7'	S 16°37.7'	112°14.8'	S 23°23.6'
18	51°46.7'		86°27.1'	S 13°51.3'	126°52.0'	S 16°40.3'	70°07.8'	S 8°49.3'	92°16.9'	S 16°37.6'	127°15.2'	S 23°23.4'
19	66°49.1'		101°27.1'	S 13°50.5'	141°53.3'	S 16°40.4'	85°09.7'	S 8°49.1'	107°19.1'	S 16°37.5'	142°15.7'	S 23°23.3'
20	81°51.6'		116°27.1'	S 13°49.6'	156°54.6'	S 16°40.5'	100°11.6'	S 8°48.8'	122°21.2'	S 16°37.5'	157°16.2'	S 23°23.1'
21	96°54.0'		131°27.1'	S 13°48.8'	171°55.8'	S 16°40.6'	115°13.5'	S 8°48.6'	137°23.4'	S 16°37.4'	172°16.6'	S 23°23.0'
22	111°56.5'		146°27.1'	S 13°48.0'	186°57.0'	S 16°40.7'	130°15.4'	S 8°48.4'	152°25.6'	S 16°37.3'	187°17.1'	S 23°22.8'
23	126°59.0'		161°27.1'	S 13°47.1'	201°58.3'	S 16°40.8'	145°17.3'	S 8°48.2'	167°27.7'	S 16°37.2'	202°17.6'	S 23°22.7'
			SD 16.2'	<i>d</i> 0.8'	<i>v</i> 1.3'	<i>d</i> -0.1'	<i>v</i> 1.9'	<i>d</i> 0.2'	<i>v</i> 2.2'	<i>d</i> 0.1'	<i>v</i> 0.5'	<i>d</i> 0.2'
Mer. pass.			12 h 14 m 11 s		9 h 33 m		13 h 20 m		11 h 52 m		9 h 31 m	

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Aldebaran	+Achernar	+Jupiter	+Sun
0	63°45.0'	N 24°42.4'	11.4'	4.9'	54.1'	119°21.1'	71°40.2'	41°12.7'	35°17.5'	11°03.6'	92°58.9'	98°56.4'	116°13.5'
1	78°15.4'	N 24°47.4'	11.3'	4.8'	54.1'	118°56.2'	71°10.7'	40°47.6'	34°48.1'	11°27.6'	93°16.0'	99°25.3'	116°40.3'
2	92°45.7'	N 24°52.2'	11.3'	4.7'	54.1'	118°31.2'	70°41.3'	40°22.6'	34°18.6'	11°52.1'	93°33.1'	99°54.2'	117°07.2'
3	107°16.0'	N 24°56.9'	11.3'	4.6'	54.1'	118°06.1'	70°11.8'	39°57.7'	33°49.2'	12°16.9'	93°50.2'	100°23.0'	117°34.1'
4	121°46.3'	N 25°01.5'	11.2'	4.5'	54.1'	117°41.0'	69°42.4'	39°32.9'	33°19.7'	12°42.1'	94°07.2'	100°51.9'	118°01.0'
5	136°16.5'	N 25°06.0'	11.2'	4.4'	54.1'	117°15.9'	69°12.9'	39°08.1'	32°50.2'	13°07.5'	94°24.3'	101°20.8'	118°27.9'
6	150°46.6'	N 25°10.4'	11.1'	4.3'	54.1'	116°50.7'	68°43.5'	38°43.5'	32°20.8'	13°33.3'	94°41.3'	101°49.7'	118°54.7'
7	165°16.8'	N 25°14.6'	11.1'	4.1'	54.1'	116°25.5'	68°14.0'	38°18.9'	31°51.3'	13°59.3'	94°58.3'	102°18.6'	119°21.6'
8	179°46.8'	N 25°18.8'	11.0'	4.0'	54.1'	116°00.3'	67°44.6'	37°54.5'	31°21.8'	14°25.5'	95°15.3'	102°47.5'	119°48.5'
9	194°16.9'	N 25°22.8'	11.0'	3.9'	54.1'	115°35.0'	67°15.1'	37°30.1'	30°52.4'	14°51.9'	95°32.3'	103°16.4'	
10	208°46.9'	N 25°26.7'	11.0'	3.8'	54.1'	115°09.7'	66°45.7'	37°05.8'	30°22.9'	15°18.5'	95°49.3'	103°45.3'	
11	223°16.9'	N 25°30.5'	10.9'	3.7'	54.1'	114°44.4'	66°16.2'	36°41.7'	29°53.4'	15°45.3'	96°06.3'	104°14.2'	
12	237°46.8'	N 25°34.1'	10.9'	3.5'	54.1'	114°19.0'	65°46.7'	36°17.7'	29°24.0'	16°12.3'	96°23.2'	104°43.2'	
13	252°16.7'	N 25°37.7'	10.9'	3.4'	54.1'	113°53.6'	65°17.2'	35°53.7'	28°54.5'	16°39.4'	96°40.2'	105°12.1'	
14	266°46.5'	N 25°41.1'	10.8'	3.3'	54.1'	113°28.1'	64°47.8'	35°29.9'	28°25.0'	17°06.6'	96°57.1'	105°41.0'	
15	281°16.3'	N 25°44.4'	10.8'	3.2'	54.1'	113°02.6'	64°18.3'	35°06.3'	27°55.6'	17°34.0'	97°14.0'	106°10.0'	
16	295°46.1'	N 25°47.6'	10.7'	3.1'	54.1'	112°37.1'	63°48.8'	34°42.7'	27°26.1'	18°01.5'	97°30.9'	106°38.9'	
17	310°15.9'	N 25°50.6'	10.7'	2.9'	54.1'	112°11.6'	63°19.3'	34°19.3'	26°56.6'	18°29.1'	97°47.7'	107°07.8'	
18	324°45.6'	N 25°53.6'	10.7'	2.8'	54.1'	111°46.0'	62°49.8'	33°56.0'	26°27.1'	18°56.8'	98°04.6'	107°36.8'	
19	339°15.2'	N 25°56.4'	10.6'	2.7'	54.1'	111°20.4'	62°20.3'	33°32.8'	25°57.7'	19°24.6'	98°21.4'	108°05.7'	
20	353°44.9'	N 25°59.1'	10.6'	2.6'	54.1'	110°54.7'	61°50.8'	33°09.8'	25°28.2'	19°52.5'	98°38.2'	108°34.7'	
21	8°14.5'	N 26°01.6'	10.6'	2.4'	54.1'	110°29.1'	61°21.2'	32°47.0'	24°58.7'	20°20.5'	98°55.0'	109°03.7'	
22	22°44.1'	N 26°04.1'	10.5'	2.3'	54.1'	110°03.3'	60°51.7'	32°24.3'	24°29.2'	20°48.6'	99°11.8'	109°32.7'	
23	37°13.6'	N 26°06.4'	10.5'	2.2'	54.1'	109°37.6'	60°22.2'	32°01.8'	23°59.7'	21°16.7'	99°28.5'	110°01.6'	
Mer. pass.			20 h 26 m SD 14.8'	phase 72%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.7'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.2'	S 63°13.0'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.1'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°10.9'	N 89°21.7'
Rigil Kent	-0.0	139°43.4'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.1'	S 60°28.5'	Canopus	-0.6	263°53.1'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	142°01.4'		176°27.1'	S 13°46.3'	216°59.5'	S 16°40.9'	160°19.2'	S 8°47.9'	182°29.9'	S 16°37.1'	217°18.0'	S 23°22.5'
1	157°03.9'		191°27.1'	S 13°45.5'	232°00.8'	S 16°41.0'	175°21.1'	S 8°47.7'	197°32.1'	S 16°37.0'	232°18.5'	S 23°22.4'
2	172°06.4'		206°27.1'	S 13°44.6'	247°02.0'	S 16°41.1'	190°23.0'	S 8°47.5'	212°34.2'	S 16°36.9'	247°19.0'	S 23°22.2'
3	187°08.8'		221°27.2'	S 13°43.8'	262°03.2'	S 16°41.2'	205°24.9'	S 8°47.3'	227°36.4'	S 16°36.9'	262°19.4'	S 23°22.1'
4	202°11.3'		236°27.2'	S 13°43.0'	277°04.4'	S 16°41.3'	220°26.9'	S 8°47.0'	242°38.6'	S 16°36.8'	277°19.9'	S 23°21.9'
5	217°13.8'		251°27.2'	S 13°42.2'	292°05.7'	S 16°41.4'	235°28.8'	S 8°46.8'	257°40.7'	S 16°36.7'	292°20.4'	S 23°21.7'
6	232°16.2'		266°27.2'	S 13°41.3'	307°06.9'	S 16°41.5'	250°30.7'	S 8°46.6'	272°42.9'	S 16°36.6'	307°20.9'	S 23°21.6'
7	247°18.7'		281°27.2'	S 13°40.5'	322°08.1'	S 16°41.6'	265°32.6'	S 8°46.4'	287°45.1'	S 16°36.5'	322°21.3'	S 23°21.4'
8	262°21.1'		296°27.2'	S 13°39.7'	337°09.3'	S 16°41.7'	280°34.5'	S 8°46.1'	302°47.2'	S 16°36.4'	337°21.8'	S 23°21.3'
9	277°23.6'		311°27.2'	S 13°38.8'	352°10.5'	S 16°41.8'	295°36.4'	S 8°45.9'	317°49.4'	S 16°36.3'	352°22.3'	S 23°21.1'
10	292°26.1'		326°27.2'	S 13°38.0'	7°11.7'	S 16°42.0'	310°38.3'	S 8°45.7'	332°51.6'	S 16°36.2'	7°22.7'	S 23°20.9'
11	307°28.5'		341°27.2'	S 13°37.2'	22°13.0'	S 16°42.1'	325°40.2'	S 8°45.5'	347°53.7'	S 16°36.2'	22°23.2'	S 23°20.8'
12	322°31.0'		356°27.2'	S 13°36.3'	37°14.2'	S 16°42.2'	340°42.1'	S 8°45.2'	2°55.9'	S 16°36.1'	37°23.7'	S 23°20.6'
13	337°33.5'		11°27.2'	S 13°35.5'	52°15.4'	S 16°42.3'	355°44.0'	S 8°45.0'	17°58.1'	S 16°36.0'	52°24.1'	S 23°20.5'
14	352°35.9'		26°27.2'	S 13°34.7'	67°16.6'	S 16°42.4'	10°45.9'	S 8°44.8'	33°00.2'	S 16°35.9'	67°24.6'	S 23°20.3'
15	7°38.4'		41°27.2'	S 13°33.8'	82°17.7'	S 16°42.5'	25°47.9'	S 8°44.6'	48°02.4'	S 16°35.8'	82°25.1'	S 23°20.1'
16	22°40.9'		56°27.3'	S 13°33.0'	97°18.9'	S 16°42.6'	40°49.8'	S 8°44.4'	63°04.6'	S 16°35.7'	97°25.5'	S 23°20.0'
17	37°43.3'		71°27.3'	S 13°32.2'	112°20.1'	S 16°42.7'	55°51.7'	S 8°44.1'	78°06.7'	S 16°35.6'	112°26.0'	S 23°19.8'
18	52°45.8'		86°27.3'	S 13°31.3'	127°21.3'	S 16°42.8'	70°53.6'	S 8°43.9'	93°08.9'	S 16°35.5'	127°26.5'	S 23°19.7'
19	67°48.3'		101°27.3'	S 13°30.5'	142°22.5'	S 16°42.8'	85°55.5'	S 8°43.7'	108°11.1'	S 16°35.5'	142°26.9'	S 23°19.5'
20	82°50.7'		116°27.3'	S 13°29.6'	157°23.7'	S 16°42.9'	100°57.4'	S 8°43.5'	123°13.2'	S 16°35.4'	157°27.4'	S 23°19.3'
21	97°53.2'		131°27.3'	S 13°28.8'	172°24.8'	S 16°43.0'	115°59.3'	S 8°43.2'	138°15.4'	S 16°35.3'	172°27.9'	S 23°19.2'
22	112°55.6'		146°27.3'	S 13°28.0'	187°26.0'	S 16°43.1'	131°01.2'	S 8°43.0'	153°17.6'	S 16°35.2'	187°28.3'	S 23°19.0'
23	127°58.1'		161°27.3'	S 13°27.1'	202°27.2'	S 16°43.2'	146°03.1'	S 8°42.8'	168°19.7'	S 16°35.1'	202°28.8'	S 23°18.8'
			SD 16.2'	d 0.8'	v 1.2'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.2'
Mer. pass.			12 h 14 m 11 s		9 h 31 m		13 h 17 m		11 h 48 m		9 h 31 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	51°43.1'	N 26°08.6'	10.5'	2.1'	54.1'	109°11.8'	59°52.6'	31°39.4'	23°30.2'				21°44.9'
1	66°12.6'	N 26°10.7'	10.5'	1.9'	54.2'	108°46.0'	59°23.1'	31°17.2'	23°00.7'				22°13.2'
2	80°42.1'	N 26°12.6'	10.4'	1.8'	54.2'	108°20.2'	58°53.5'	30°55.2'	22°31.2'				22°41.5'
3	95°11.5'	N 26°14.4'	10.4'	1.7'	54.2'	107°54.4'	58°24.0'	30°33.4'	22°01.7'				23°09.9'
4	109°40.9'	N 26°16.1'	10.4'	1.6'	54.2'	107°28.5'	57°54.4'	30°11.8'	21°32.3'				23°38.4'
5	124°10.2'	N 26°17.7'	10.3'	1.4'	54.2'	107°02.6'	57°24.8'	29°50.4'	21°02.8'				24°06.9'
6	138°39.6'	N 26°19.1'	10.3'	1.3'	54.2'	106°36.6'	56°55.2'	29°29.1'	20°33.3'				24°35.5'
7	153°08.9'	N 26°20.4'	10.3'	1.2'	54.2'	106°10.7'	56°25.6'	29°08.1'	20°03.8'				25°04.1'
8	167°38.2'	N 26°21.6'	10.3'	1.1'	54.2'	105°44.7'	55°56.0'	28°47.4'	19°34.3'				25°32.8'
9	182°07.5'	N 26°22.7'	10.3'	0.9'	54.2'	105°18.7'	55°26.4'	28°26.9'	19°04.8'				26°01.5'
10	196°36.7'	N 26°23.6'	10.2'	0.8'	54.2'	104°52.6'	54°56.8'	28°06.6'	18°35.3'				26°30.3'
11	211°06.0'	N 26°24.4'	10.2'	0.7'	54.2'	104°26.6'	54°27.1'	27°46.5'	18°05.8'				26°59.1'
12	225°35.2'	N 26°25.1'	10.2'	0.5'	54.2'	104°00.5'	53°57.5'	27°26.8'	17°36.3'				27°28.0'
13	240°04.4'	N 26°25.7'	10.2'	0.4'	54.2'	103°34.3'	53°27.8'	27°07.3'	17°06.9'			24°13.2'	27°56.9'
14	254°33.5'	N 26°26.1'	10.2'	0.3'	54.3'	103°08.2'	52°58.2'	26°48.0'	16°37.4'			24°28.5'	28°25.8'
15	269°02.7'	N 26°26.4'	10.1'	0.2'	54.3'	102°42.0'	52°28.5'	26°29.1'	16°07.9'			24°44.2'	28°54.8'
16	283°31.8'	N 26°26.5'	10.1'	0.0'	54.3'	102°15.8'	51°58.8'	26°10.5'	15°38.5'			25°00.4'	29°23.8'
17	298°01.0'	N 26°26.6'	10.1'	-0.1'	54.3'	101°49.6'	51°29.1'	25°52.2'	15°09.0'	21°32.6'	25°16.9'	29°52.9'	40°04.9'
18	312°30.1'	N 26°26.5'	10.1'	-0.2'	54.3'	101°23.4'	50°59.4'	25°34.2'	14°39.6'	21°47.7'	25°33.8'	30°22.0'	40°21.3'
19	326°59.2'	N 26°26.2'	10.1'	-0.4'	54.3'	100°57.1'	50°29.7'	25°16.6'	14°10.2'	22°03.2'	25°51.1'	30°51.1'	40°37.9'
20	341°28.2'	N 26°25.9'	10.1'	-0.5'	54.3'	100°30.8'	49°59.9'	24°59.3'	13°40.8'	22°19.3'	26°08.8'	31°20.2'	40°54.7'
21	355°57.3'	N 26°25.4'	10.1'	-0.6'	54.3'	100°04.5'	49°30.2'	24°42.4'	13°11.5'	22°35.8'	26°26.8'	31°49.4'	41°11.8'
22	10°26.4'	N 26°24.8'	10.1'	-0.7'	54.3'	99°38.2'	49°00.4'	24°25.9'	12°42.1'	22°52.7'	26°45.1'	32°18.7'	41°29.0'
23	24°55.4'	N 26°24.0'	10.0'	-0.9'	54.3'	99°11.8'	48°30.7'	24°09.8'	12°12.8'	23°10.0'	27°03.8'	32°47.9'	41°46.5'
Mer. pass.			21 h 17 m SD 14.8'		phase 80%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.9'	N 45°21.4'	Acrux	+0.8	173°02.2'	S 63°13.0'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°36.7'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.1'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.9'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°11.3'	N 89°21.7'
Rigel Kent	-0.0	139°43.4'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.1'	S 60°28.5'	Canopus	-0.6	263°53.1'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	143°00.6'		176°27.4'	S 13°26.3'	217°28.4'	S 16°43.3'	161°05.0'	S 8°42.6'	183°21.9'	S 16°35.0'	217°29.3'	S 23°18.7'
1	158°03.0'		191°27.4'	S 13°25.4'	232°29.5'	S 16°43.4'	176°06.9'	S 8°42.3'	198°24.1'	S 16°34.9'	232°29.7'	S 23°18.5'
2	173°05.5'		206°27.4'	S 13°24.6'	247°30.7'	S 16°43.5'	191°08.8'	S 8°42.1'	213°26.2'	S 16°34.8'	247°30.2'	S 23°18.3'
3	188°08.0'		221°27.4'	S 13°23.8'	262°31.8'	S 16°43.6'	206°10.8'	S 8°41.9'	228°28.4'	S 16°34.8'	262°30.7'	S 23°18.2'
4	203°10.4'		236°27.4'	S 13°22.9'	277°33.0'	S 16°43.7'	221°12.7'	S 8°41.7'	243°30.6'	S 16°34.7'	277°31.1'	S 23°18.0'
5	218°12.9'		251°27.4'	S 13°22.1'	292°34.2'	S 16°43.8'	236°14.6'	S 8°41.4'	258°32.7'	S 16°34.6'	292°31.6'	S 23°17.8'
6	233°15.4'		266°27.4'	S 13°21.2'	307°35.3'	S 16°43.9'	251°16.5'	S 8°41.2'	273°34.9'	S 16°34.5'	307°32.1'	S 23°17.7'
7	248°17.8'		281°27.5'	S 13°20.4'	322°36.5'	S 16°44.0'	266°18.4'	S 8°41.0'	288°37.1'	S 16°34.4'	322°32.5'	S 23°17.5'
8	263°20.3'		296°27.5'	S 13°19.6'	337°37.6'	S 16°44.1'	281°20.3'	S 8°40.8'	303°39.2'	S 16°34.3'	337°33.0'	S 23°17.3'
9	278°22.8'		311°27.5'	S 13°18.7'	352°38.7'	S 16°44.2'	296°22.2'	S 8°40.5'	318°41.4'	S 16°34.2'	352°33.5'	S 23°17.2'
10	293°25.2'		326°27.5'	S 13°17.9'	7°39.9'	S 16°44.3'	311°24.1'	S 8°40.3'	333°43.6'	S 16°34.1'	7°34.0'	S 23°17.0'
11	308°27.7'		341°27.5'	S 13°17.0'	22°41.0'	S 16°44.4'	326°26.0'	S 8°40.1'	348°45.7'	S 16°34.1'	22°34.4'	S 23°16.8'
12	323°30.1'		356°27.5'	S 13°16.2'	37°42.2'	S 16°44.5'	341°27.9'	S 8°39.9'	3°47.9'	S 16°34.0'	37°34.9'	S 23°16.7'
13	338°32.6'		11°27.6'	S 13°15.4'	52°43.3'	S 16°44.6'	356°29.8'	S 8°39.6'	18°50.1'	S 16°33.9'	52°35.4'	S 23°16.5'
14	353°35.1'		26°27.6'	S 13°14.5'	67°44.4'	S 16°44.7'	11°31.7'	S 8°39.4'	33°52.2'	S 16°33.8'	67°35.8'	S 23°16.3'
15	8°37.5'		41°27.6'	S 13°13.7'	82°45.5'	S 16°44.8'	26°33.6'	S 8°39.2'	48°54.4'	S 16°33.7'	82°36.3'	S 23°16.1'
16	23°40.0'		56°27.6'	S 13°12.8'	97°46.7'	S 16°44.9'	41°35.6'	S 8°39.0'	63°56.6'	S 16°33.6'	97°36.8'	S 23°16.0'
17	38°42.5'		71°27.6'	S 13°12.0'	112°47.8'	S 16°45.0'	56°37.5'	S 8°38.7'	78°58.7'	S 16°33.5'	112°37.2'	S 23°15.8'
18	53°44.9'		86°27.6'	S 13°11.1'	127°48.9'	S 16°45.1'	71°39.4'	S 8°38.5'	94°00.9'	S 16°33.4'	127°37.7'	S 23°15.6'
19	68°47.4'		101°27.7'	S 13°10.3'	142°50.0'	S 16°45.2'	86°41.3'	S 8°38.3'	109°03.1'	S 16°33.4'	142°38.2'	S 23°15.5'
20	83°49.9'		116°27.7'	S 13°09.4'	157°51.1'	S 16°45.3'	101°43.2'	S 8°38.1'	124°05.2'	S 16°33.3'	157°38.6'	S 23°15.3'
21	98°52.3'		131°27.7'	S 13°08.6'	172°52.2'	S 16°45.4'	116°45.1'	S 8°37.8'	139°07.4'	S 16°33.2'	172°39.1'	S 23°15.1'
22	113°54.8'		146°27.7'	S 13°07.7'	187°53.3'	S 16°45.5'	131°47.0'	S 8°37.6'	154°09.6'	S 16°33.1'	187°39.6'	S 23°14.9'
23	128°57.3'		161°27.7'	S 13°06.9'	202°54.4'	S 16°45.6'	146°48.9'	S 8°37.4'	169°11.7'	S 16°33.0'	202°40.0'	S 23°14.8'
			SD 16.2'	d 0.8'	v 1.1'	d -0.1'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.2'
Mer. pass.			12 h 14 m 10 s		9 h 29 m		13 h 14 m		11 h 45 m		9 h 30 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	39°24.5'	N 26°23.2'	10.0'	-1.0'	54.3'	98°45.4'	48°00.9'	23°54.1'	11°43.6'	23°27.8'	27°22.8'	33°17.2'	42°04.1'
1	53°53.5'	N 26°22.2'	10.0'	-1.1'	54.4'	98°19.0'	47°31.1'		11°14.3'	23°45.9'	27°42.1'	33°46.5'	42°22.0'
2	68°22.5'	N 26°21.0'	10.0'	-1.3'	54.4'	97°52.6'	47°01.3'		10°45.2'	24°04.4'	28°01.7'	34°15.9'	42°40.0'
3	82°51.6'	N 26°19.8'	10.0'	-1.4'	54.4'	97°26.2'	46°31.5'		10°16.1'	24°23.3'	28°21.6'	34°45.3'	42°58.2'
4	97°20.6'	N 26°18.4'	10.0'	-1.5'	54.4'	96°59.7'	46°01.6'		9°47.0'	24°42.6'	28°41.7'	35°14.7'	43°16.6'
5	111°49.6'	N 26°16.8'	10.0'	-1.7'	54.4'	96°33.2'	45°31.8'		9°18.1'	25°02.2'	29°02.2'	35°44.1'	43°35.2'
6	126°18.6'	N 26°15.2'	10.0'	-1.8'	54.4'	96°06.7'	45°01.9'		8°49.3'	25°22.1'	29°22.8'	36°13.6'	43°54.0'
7	140°47.6'	N 26°13.4'	10.0'	-1.9'	54.4'	95°40.2'	44°32.1'		8°20.5'	25°42.3'	29°43.8'	36°43.1'	44°12.9'
8	155°16.7'	N 26°11.5'	10.0'	-2.0'	54.4'	95°13.6'	44°02.2'		7°52.0'	26°02.8'	30°05.0'	37°12.7'	44°32.1'
9	169°45.7'	N 26°09.4'	10.0'	-2.2'	54.5'	94°47.1'	43°32.3'		7°23.6'	26°23.7'	30°26.4'	37°42.2'	44°51.3'
10	184°14.7'	N 26°07.3'	10.0'	-2.3'	54.5'	94°20.5'	43°02.4'		6°55.4'	26°44.8'	30°48.1'	38°11.8'	45°10.8'
11	198°43.7'	N 26°05.0'	10.0'	-2.4'	54.5'	93°53.9'	42°32.5'		6°27.6'	27°06.2'	31°10.0'	38°41.4'	45°30.4'
12	213°12.7'	N 26°02.5'	10.0'	-2.6'	54.5'	93°27.3'	42°02.6'		6°00.0'	27°27.8'	31°32.1'	39°11.1'	45°50.2'
13	227°41.7'	N 25°59.9'	10.0'	-2.7'	54.5'	93°00.6'	41°32.6'		5°32.9'	27°49.7'	31°54.4'	39°40.7'	46°10.1'
14	242°10.8'	N 25°57.2'	10.0'	-2.8'	54.5'	92°34.0'	41°02.7'		5°06.4'	28°11.9'	32°16.9'	40°10.4'	46°30.2'
15	256°39.8'	N 25°54.4'	10.0'	-3.0'	54.5'	92°07.3'	40°32.7'			28°34.3'	32°39.6'	40°40.2'	46°50.4'
16	271°08.9'	N 25°51.5'	10.1'	-3.1'	54.6'	91°40.6'	40°02.7'			28°56.9'	33°02.5'	41°09.9'	47°10.8'
17	285°37.9'	N 25°48.4'	10.1'	-3.2'	54.6'	91°13.9'	39°32.7'			29°19.8'	33°25.6'	41°39.7'	47°31.3'
18	300°07.0'	N 25°45.2'	10.1'	-3.3'	54.6'	90°47.2'	39°02.7'			29°42.8'	33°48.9'	42°09.5'	47°52.0'
19	314°36.1'	N 25°41.8'	10.1'	-3.5'	54.6'	90°20.4'	38°32.7'			30°06.1'	34°12.4'	42°39.3'	48°12.8'
20	329°05.1'	N 25°38.3'	10.1'	-3.6'	54.6'	89°53.6'	38°02.6'			30°29.6'	34°36.0'	43°09.2'	48°33.8'
21	343°34.2'	N 25°34.7'	10.1'	-3.7'	54.6'	89°26.9'	37°32.6'			30°53.2'	34°59.8'	43°39.1'	48°54.9'
22	358°03.4'	N 25°31.0'	10.1'	-3.9'	54.6'	89°00.1'	37°02.5'			31°17.1'	35°23.7'	44°09.0'	49°16.1'
23	12°32.5'	N 25°27.1'	10.1'	-4.0'	54.7'	88°33.3'	36°32.5'			31°41.1'	35°47.8'	44°38.9'	49°37.4'
Mer. pass.			22 h 8 m SD 14.8'		phase 87%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°02.2'	S 63°13.1'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.1'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.2'	N 16°33.2'
Antares	+1.1	112°18.8'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°11.8'	N 89°21.7'
Rigil Kent	-0.0	139°43.4'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.8'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°44.9'				
Hadar	+0.6	148°39.1'	S 60°28.5'	Canopus	-0.6	263°53.1'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	147°56.3'	176°31.2' S 11°43.0'	219°28.8' S 16°53.3'	164°53.8' S 8°15.5'	187°42.1' S 16°24.5'	218°25.6' S 22°55.9'						
1	162°58.7'	191°31.3' S 11°42.2'	234°29.6' S 16°53.4'	179°55.7' S 8°15.2'	202°44.2' S 16°24.5'	233°26.1' S 22°55.7'						
2	178°01.2'	206°31.3' S 11°41.3'	249°30.5' S 16°53.4'	194°57.6' S 8°15.0'	217°46.4' S 16°24.4'	248°26.6' S 22°55.4'						
3	193°03.7'	221°31.4' S 11°40.4'	264°31.3' S 16°53.5'	209°59.5' S 8°14.8'	232°48.6' S 16°24.3'	263°27.1' S 22°55.2'						
4	208°06.1'	236°31.4' S 11°39.5'	279°32.2' S 16°53.6'	225°01.4' S 8°14.6'	247°50.7' S 16°24.2'	278°27.5' S 22°55.0'						
5	223°08.6'	251°31.5' S 11°38.6'	294°33.0' S 16°53.6'	240°03.3' S 8°14.3'	262°52.9' S 16°24.1'	293°28.0' S 22°54.8'						
6	238°11.1'	266°31.5' S 11°37.8'	309°33.8' S 16°53.7'	255°05.2' S 8°14.1'	277°55.1' S 16°24.0'	308°28.5' S 22°54.6'						
7	253°13.5'	281°31.6' S 11°36.9'	324°34.7' S 16°53.7'	270°07.1' S 8°13.9'	292°57.2' S 16°23.9'	323°28.9' S 22°54.4'						
8	268°16.0'	296°31.6' S 11°36.0'	339°35.5' S 16°53.8'	285°09.0' S 8°13.6'	307°59.4' S 16°23.9'	338°29.4' S 22°54.1'						
9	283°18.4'	311°31.7' S 11°35.1'	354°36.3' S 16°53.9'	300°10.9' S 8°13.4'	323°01.6' S 16°23.8'	353°29.9' S 22°53.9'						
10	298°20.9'	326°31.7' S 11°34.2'	9°37.2' S 16°53.9'	315°12.8' S 8°13.2'	338°03.7' S 16°23.7'	8°30.4' S 22°53.7'						
11	313°23.4'	341°31.8' S 11°33.3'	24°38.0' S 16°54.0'	330°14.7' S 8°13.0'	353°05.9' S 16°23.6'	23°30.8' S 22°53.5'						
12	328°25.8'	356°31.9' S 11°32.5'	39°38.8' S 16°54.0'	345°16.7' S 8°12.7'	8°08.1' S 16°23.5'	38°31.3' S 22°53.3'						
13	343°28.3'	11°31.9' S 11°31.6'	54°39.6' S 16°54.1'	0°18.6' S 8°12.5'	23°10.3' S 16°23.4'	53°31.8' S 22°53.0'						
14	358°30.8'	26°32.0' S 11°30.7'	69°40.5' S 16°54.2'	15°20.5' S 8°12.3'	38°12.4' S 16°23.3'	68°32.3' S 22°52.8'						
15	13°33.2'	41°32.0' S 11°29.8'	84°41.3' S 16°54.2'	30°22.4' S 8°12.1'	53°14.6' S 16°23.2'	83°32.7' S 22°52.6'						
16	28°35.7'	56°32.1' S 11°28.9'	99°42.1' S 16°54.3'	45°24.3' S 8°11.8'	68°16.8' S 16°23.2'	98°33.2' S 22°52.4'						
17	43°38.2'	71°32.1' S 11°28.0'	114°42.9' S 16°54.3'	60°26.2' S 8°11.6'	83°18.9' S 16°23.1'	113°33.7' S 22°52.2'						
18	58°40.6'	86°32.2' S 11°27.1'	129°43.7' S 16°54.4'	75°28.1' S 8°11.4'	98°21.1' S 16°23.0'	128°34.1' S 22°51.9'						
19	73°43.1'	101°32.2' S 11°26.3'	144°44.5' S 16°54.5'	90°30.0' S 8°11.1'	113°23.3' S 16°22.9'	143°34.6' S 22°51.7'						
20	88°45.6'	116°32.3' S 11°25.4'	159°45.3' S 16°54.5'	105°31.9' S 8°10.9'	128°25.4' S 16°22.8'	158°35.1' S 22°51.5'						
21	103°48.0'	131°32.4' S 11°24.5'	174°46.1' S 16°54.6'	120°33.8' S 8°10.7'	143°27.6' S 16°22.7'	173°35.6' S 22°51.3'						
22	118°50.5'	146°32.4' S 11°23.6'	189°46.9' S 16°54.6'	135°35.7' S 8°10.5'	158°29.8' S 16°22.6'	188°36.0' S 22°51.0'						
23	133°52.9'	161°32.5' S 11°22.7'	204°47.7' S 16°54.7'	150°37.6' S 8°10.2'	173°32.0' S 16°22.5'	203°36.5' S 22°50.8'						
		SD 16.2' d 0.9'	v 0.8' d -0.1'	v 1.9' d 0.2'	v 2.2' d 0.1'	v 0.5' d 0.2'						
Mer. pass.		12 h 13 m 52 s	9 h 22 m	12 h 59 m	11 h 28 m	9 h 26 m						

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	340°09.1'	N 10°24.1'	13.4'	-13.5'	56.5'	78°48.4'	75°05.0'	45°33.1'	39°59.1'	15°10.5'	50°57.2'	52°23.4'	70°54.0'
1	354°41.5'	N 10°10.6'	13.4'	-13.6'	56.6'	78°25.5'	74°47.1'	45°08.6'	39°26.8'	15°41.6'	51°29.7'	52°52.7'	71°16.4'
2	9°13.9'	N 9°57.0'	13.4'	-13.6'	56.6'	78°02.6'	74°29.3'	44°44.2'	38°54.5'	16°12.8'	52°02.2'	53°22.1'	71°39.0'
3	23°46.3'	N 9°43.3'	13.4'	-13.7'	56.6'	77°39.7'	74°11.6'	44°20.0'	38°22.2'	16°44.1'	52°34.8'	53°51.5'	72°01.6'
4	38°18.7'	N 9°29.6'	13.4'	-13.7'	56.6'	77°16.8'	73°53.8'	43°55.9'	37°49.9'	17°15.5'	53°07.3'	54°21.0'	72°24.2'
5	52°51.1'	N 9°15.9'	13.5'	-13.8'	56.6'	76°54.0'	73°36.2'	43°31.9'	37°17.5'	17°47.1'	53°39.9'	54°50.5'	72°47.0'
6	67°23.6'	N 9°02.1'	13.5'	-13.8'	56.7'	76°31.2'	73°18.6'	43°08.0'	36°45.2'	18°18.6'	54°12.6'	55°20.1'	73°09.8'
7	81°56.1'	N 8°48.2'	13.5'	-13.9'	56.7'	76°08.4'	73°01.0'	42°44.3'	36°12.8'	18°50.3'	54°45.2'	55°49.8'	73°32.6'
8	96°28.6'	N 8°34.4'	13.5'	-13.9'	56.7'	75°45.6'	72°43.5'	42°20.8'	35°40.4'	19°22.1'	55°17.9'	56°19.5'	73°55.5'
9	111°01.1'	N 8°20.4'	13.5'	-14.0'	56.7'	75°22.8'	72°26.1'	41°57.4'	35°08.0'	19°53.9'	55°50.6'	56°49.3'	74°18.5'
10	125°33.6'	N 8°06.4'	13.5'	-14.0'	56.7'	75°00.1'	72°08.7'	41°34.1'	34°35.6'	20°25.8'	56°23.3'	57°19.1'	74°41.6'
11	140°06.2'	N 7°52.4'	13.6'	-14.1'	56.8'	74°37.4'	71°51.4'	41°11.0'	34°03.1'	20°57.7'	56°56.0'	57°49.0'	75°04.7'
12	154°38.7'	N 7°38.3'	13.6'	-14.1'	56.8'	74°14.8'	71°34.1'	40°48.1'	33°30.7'	21°29.8'	57°28.8'	58°18.9'	75°27.8'
13	169°11.3'	N 7°24.2'	13.6'	-14.2'	56.8'	73°52.1'	71°16.9'	40°25.3'	32°58.2'	22°01.8'	58°01.6'	58°48.9'	75°51.1'
14	183°43.9'	N 7°10.0'	13.6'	-14.2'	56.8'	73°29.5'	70°59.8'	40°02.7'	32°25.8'	22°34.0'	58°34.4'	59°18.9'	76°14.3'
15	198°16.5'	N 6°55.8'	13.6'	-14.3'	56.8'	73°07.0'	70°42.7'	39°40.3'	31°53.3'	23°06.1'	59°07.2'	59°49.0'	76°37.7'
16	212°49.1'	N 6°41.5'	13.6'	-14.3'	56.9'	72°44.4'	70°25.7'	39°18.1'	31°20.8'	23°38.4'	59°40.1'	60°19.2'	77°01.0'
17	227°21.7'	N 6°27.2'	13.6'	-14.3'	56.9'	72°21.9'	70°08.8'	38°56.1'	30°48.3'	24°10.7'	60°12.9'	60°49.3'	77°24.5'
18	241°54.4'	N 6°12.9'	13.6'	-14.4'	56.9'	71°59.5'	69°51.9'	38°34.3'	30°15.8'	24°43.0'	60°45.8'	61°19.6'	77°47.9'
19	256°27.0'	N 5°58.5'	13.6'	-14.4'	56.9'	71°37.1'	69°35.1'	38°12.7'	29°43.3'	25°15.4'	61°18.7'	61°49.9'	78°11.5'
20	270°59.6'	N 5°44.1'	13.6'	-14.4'	57.0'	71°14.7'	69°18.4'	37°51.4'	29°10.8'	25°47.8'	61°51.7'	62°20.2'	78°35.0'
21	285°32.3'	N 5°29.7'	13.7'	-14.5'	57.0'	70°52.3'	69°01.8'	37°30.2'	28°38.3'	26°20.3'	62°24.6'	62°50.5'	78°58.7'
22	300°05.0'	N 5°15.2'	13.7'	-14.5'	57.0'	70°30.1'	68°45.3'	37°09.3'	28°05.8'	26°52.8'	62°57.6'	63°21.0'	79°22.3'
23	314°37.6'	N 5°00.7'	13.7'	-14.5'	57.0'	70°07.8'	68°28.8'	36°48.6'	27°33.3'	27°25.3'	63°30.6'	63°51.4'	79°46.0'
Mer. pass.		1 h 22 m SD 15.4'	phase 98%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.3'	Acrux	+0.8	173°02.2'	S 63°13.1'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.7'
Vega	+0.0	80°35.1'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.3'	Aldebaran	+0.9	290°42.3'	N 16°33.2'
Antares	+1.1	112°18.8'	S 26°28.8'	Procyon	+0.4	244°53.0'	N 5°10.0'	Polaris	+2.0	315°14.4'	N 89°21.7'
Rigil Kent	-0.0	139°43.3'	S 60°55.3'	Adhara	+1.5	255°07.4'	S 29°00.3'	Achernar	+0.5	335°22.3'	S 57°07.8'
Arcturus	-0.1	145°50.0'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°45.0'				
Hadar	+0.6	148°39.1'	S 60°28.5'	Canopus	-0.6	263°53.1'	S 52°42.7'				

Sunday 20 February 2022 UT1

Table with columns: h, Aries GHA, Sun GHA dec, Venus GHA dec, Jupiter GHA dec, Saturn GHA dec, Mars GHA dec. Rows include hour-by-hour data from 0 to 23 and a summary row for Mer. pass.

Table with columns: h, Moon (GHA, dec, v, d, HP), Lunar distance (+Rigil Kent, +Hadar, +Antares, +Spica, +Regulus, +Procyon, +Pollux, +Adhara), and Mer. pass. Rows include hour-by-hour data from 0 to 23 and a summary row for Mer. pass.

Table with columns: Star, mag, SHA, dec. Rows list stars such as Fomalhaut, Deneb, Altair, Vega, Antares, Rigil Kent, Arcturus, Hadar, Spica, Acrux, Regulus, Pollux, Procyon, Adhara, Sirius, Canopus, Betelgeuse, Capella, Rigel, Aldebaran, Polaris, and Achernar.

Thursday 24 February 2022 UT1

Table with columns: h, Aries GHA, Sun GHA dec, Venus GHA dec, Jupiter GHA dec, Saturn GHA dec, Mars GHA dec. Rows 0-23 and Mer. pass. summary.

Table with columns: h, Moon GHA dec v d HP, Lunar distance -Sun -Saturn -Mars -Venus -Antares +Spica +Arcturus +Regulus. Rows 0-23 and Mer. pass. summary.

Table with columns: Star, mag, SHA, dec. Rows for various stars like Fomalhaut, Deneb, Altair, Vega, etc.

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	154°50.2'	176°43.7'	S 9°10.9'	221°21.1'	S 16°57.5'	170°13.5'	S 7°37.0'	193°47.0'	S 16°10.0'	219°45.7'	S 22°14.1'
1	169°52.7'	191°43.8'	S 9°10.0'	236°21.6'	S 16°57.5'	185°15.4'	S 7°36.8'	208°49.2'	S 16°09.9'	234°46.2'	S 22°13.8'
2	184°55.2'	206°43.9'	S 9°09.0'	251°22.1'	S 16°57.5'	200°17.3'	S 7°36.6'	223°51.3'	S 16°09.8'	249°46.6'	S 22°13.5'
3	199°57.6'	221°44.0'	S 9°08.1'	266°22.6'	S 16°57.5'	215°19.2'	S 7°36.3'	238°53.5'	S 16°09.7'	264°47.1'	S 22°13.2'
4	215°00.1'	236°44.1'	S 9°07.2'	281°23.1'	S 16°57.5'	230°21.1'	S 7°36.1'	253°55.7'	S 16°09.6'	279°47.6'	S 22°13.0'
5	230°02.6'	251°44.2'	S 9°06.3'	296°23.6'	S 16°57.4'	245°23.0'	S 7°35.9'	268°57.9'	S 16°09.6'	294°48.1'	S 22°12.7'
6	245°05.0'	266°44.2'	S 9°05.3'	311°24.1'	S 16°57.4'	260°24.9'	S 7°35.6'	284°00.0'	S 16°09.5'	309°48.6'	S 22°12.4'
7	260°07.5'	281°44.3'	S 9°04.4'	326°24.5'	S 16°57.4'	275°26.8'	S 7°35.4'	299°02.2'	S 16°09.4'	324°49.1'	S 22°12.1'
8	275°09.9'	296°44.4'	S 9°03.5'	341°25.0'	S 16°57.4'	290°28.7'	S 7°35.2'	314°04.4'	S 16°09.3'	339°49.5'	S 22°11.8'
9	290°12.4'	311°44.5'	S 9°02.5'	356°25.5'	S 16°57.3'	305°30.6'	S 7°34.9'	329°06.6'	S 16°09.2'	354°50.0'	S 22°11.5'
10	305°14.9'	326°44.6'	S 9°01.6'	11°26.0'	S 16°57.3'	320°32.5'	S 7°34.7'	344°08.8'	S 16°09.1'	9°50.5'	S 22°11.3'
11	320°17.3'	341°44.7'	S 9°00.7'	26°26.5'	S 16°57.3'	335°34.4'	S 7°34.5'	359°10.9'	S 16°09.0'	24°51.0'	S 22°11.0'
12	335°19.8'	356°44.8'	S 8°59.7'	41°27.0'	S 16°57.3'	350°36.3'	S 7°34.3'	14°13.1'	S 16°08.9'	39°51.5'	S 22°10.7'
13	350°22.3'	11°44.9'	S 8°58.8'	56°27.5'	S 16°57.2'	5°38.2'	S 7°34.0'	29°15.3'	S 16°08.9'	54°51.9'	S 22°10.4'
14	5°24.7'	26°45.0'	S 8°57.9'	71°27.9'	S 16°57.2'	20°40.2'	S 7°33.8'	44°17.5'	S 16°08.8'	69°52.4'	S 22°10.1'
15	20°27.2'	41°45.1'	S 8°56.9'	86°28.4'	S 16°57.2'	35°42.1'	S 7°33.6'	59°19.6'	S 16°08.7'	84°52.9'	S 22°09.8'
16	35°29.7'	56°45.2'	S 8°56.0'	101°28.9'	S 16°57.2'	50°44.0'	S 7°33.3'	74°21.8'	S 16°08.6'	99°53.4'	S 22°09.5'
17	50°32.1'	71°45.3'	S 8°55.1'	116°29.4'	S 16°57.1'	65°45.9'	S 7°33.1'	89°24.0'	S 16°08.5'	114°53.9'	S 22°09.2'
18	65°34.6'	86°45.4'	S 8°54.1'	131°29.8'	S 16°57.1'	80°47.8'	S 7°32.9'	104°26.2'	S 16°08.4'	129°54.4'	S 22°09.0'
19	80°37.1'	101°45.5'	S 8°53.2'	146°30.3'	S 16°57.1'	95°49.7'	S 7°32.6'	119°28.3'	S 16°08.3'	144°54.8'	S 22°08.7'
20	95°39.5'	116°45.6'	S 8°52.3'	161°30.8'	S 16°57.0'	110°51.6'	S 7°32.4'	134°30.5'	S 16°08.3'	159°55.3'	S 22°08.4'
21	110°42.0'	131°45.7'	S 8°51.3'	176°31.3'	S 16°57.0'	125°53.5'	S 7°32.2'	149°32.7'	S 16°08.2'	174°55.8'	S 22°08.1'
22	125°44.4'	146°45.8'	S 8°50.4'	191°31.7'	S 16°57.0'	140°55.4'	S 7°32.0'	164°34.9'	S 16°08.1'	189°56.3'	S 22°07.8'
23	140°46.9'	161°45.9'	S 8°49.5'	206°32.2'	S 16°56.9'	155°57.3'	S 7°31.7'	179°37.0'	S 16°08.0'	204°56.8'	S 22°07.5'
		SD 16.2'	d 0.9'	v 0.5'	d 0.0'	v 1.9'	d 0.2'	v 2.2'	d 0.1'	v 0.5'	d 0.3'
Mer. pass.		12 h 13 m 1 s		9 h 14 m		12 h 38 m		11 h 3 m		9 h 21 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Altair	-Venus	-Mars	+Antares	+Rigel Kent	+Hadar	+Spica
0	255°37.1'	S 25°08.1'	4.6'	-5.4'	59.3'	76°06.9'	50°49.4'	32°54.6'	32°52.2'	10°27.9'			56°03.2'
1	270°00.7'	S 25°13.5'	4.6'	-5.2'	59.3'	75°34.0'	50°24.8'	32°22.3'	32°18.7'	11°01.6'			56°38.6'
2	284°24.3'	S 25°18.7'	4.5'	-5.1'	59.3'	75°01.1'	50°00.3'	31°50.0'	31°45.2'	11°35.6'			57°14.0'
3	298°47.8'	S 25°23.8'	4.4'	-4.9'	59.3'	74°28.1'	49°36.0'	31°17.7'	31°11.7'	12°09.7'			57°49.4'
4	313°11.2'	S 25°28.7'	4.4'	-4.7'	59.4'	73°55.2'	49°11.8'	30°45.5'	30°38.2'	12°44.0'			58°24.8'
5	327°34.6'	S 25°33.4'	4.3'	-4.5'	59.4'	73°22.3'	48°47.8'	30°13.4'	30°04.7'	13°18.3'			59°00.3'
6	341°57.9'	S 25°37.9'	4.2'	-4.4'	59.4'	72°49.3'	48°24.0'	29°41.2'	29°31.2'	13°52.8'			59°35.7'
7	356°21.1'	S 25°42.3'	4.2'	-4.2'	59.4'	72°16.3'	48°00.3'	29°09.1'	28°57.7'	14°27.4'			60°11.2'
8	10°44.3'	S 25°46.5'	4.1'	-4.0'	59.4'	71°43.4'	47°36.9'	28°37.1'	28°24.2'	15°02.1'			60°46.7'
9	25°07.4'	S 25°50.5'	4.1'	-3.9'	59.4'	71°10.4'	47°13.6'	28°05.1'	27°50.7'	15°36.9'		50°05.1'	61°22.2'
10	39°30.5'	S 25°54.4'	4.0'	-3.7'	59.4'	70°37.4'	46°50.5'	27°33.2'	27°17.2'	16°11.7'		50°20.2'	61°57.7'
11	53°53.5'	S 25°58.1'	4.0'	-3.5'	59.4'	70°04.4'	46°27.6'	27°01.3'	26°43.7'	16°46.6'		50°35.6'	62°33.2'
12	68°16.4'	S 26°01.6'	3.9'	-3.3'	59.4'	69°31.4'	46°04.9'	26°29.5'	26°10.2'	17°21.6'		50°51.2'	63°08.7'
13	82°39.3'	S 26°04.9'	3.9'	-3.1'	59.4'	68°58.3'	45°42.4'	25°57.7'	25°36.7'	17°56.6'		51°07.1'	63°44.2'
14	97°02.2'	S 26°08.0'	3.8'	-3.0'	59.4'	68°25.3'	45°20.1'	25°26.1'	25°03.2'	18°31.7'		51°23.2'	64°19.8'
15	111°25.0'	S 26°11.0'	3.8'	-2.8'	59.4'	67°52.2'	44°58.0'	24°54.5'	24°29.7'	19°06.8'		47°41.4'	64°55.4'
16	125°47.8'	S 26°13.8'	3.7'	-2.6'	59.4'	67°19.2'	44°36.2'	24°23.0'	23°56.2'	19°42.0'		47°56.6'	65°30.9'
17	140°10.5'	S 26°16.4'	3.7'	-2.4'	59.5'	66°46.1'	44°14.6'	23°51.5'	23°22.7'	20°17.2'		48°12.1'	66°06.5'
18	154°33.2'	S 26°18.8'	3.7'	-2.2'	59.5'	66°13.1'	43°53.2'	23°20.2'	22°49.3'	20°52.5'		48°27.9'	66°42.1'
19	168°55.8'	S 26°21.0'	3.6'	-2.1'	59.5'	65°40.0'	43°32.1'	22°49.0'	22°15.8'	21°27.7'		48°44.0'	67°17.7'
20	183°18.5'	S 26°23.1'	3.6'	-1.9'	59.5'	65°06.9'	43°11.2'	22°17.9'	21°42.4'	22°03.1'		49°00.3'	67°53.4'
21	197°41.0'	S 26°24.9'	3.6'	-1.7'	59.5'	64°33.8'	42°50.6'	21°46.9'	21°08.9'	22°38.4'		49°16.9'	68°29.0'
22	212°03.6'	S 26°26.6'	3.5'	-1.5'	59.5'	64°00.7'	42°30.2'	21°16.0'	20°35.5'	23°13.8'		49°33.7'	69°04.6'
23	226°26.1'	S 26°28.1'	3.5'	-1.3'	59.5'	63°27.6'	42°10.1'	20°45.3'	20°02.1'	23°49.2'		49°50.8'	69°40.3'
Mer. pass.		7 h 15 m SD 16.2'	phase 38%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.1'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.0'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.1'
Antares	+1.1	112°18.7'	S 26°28.8'	Procyon	+0.4	244°53.1'	N 5°10.0'	Polaris	+2.0	315°17.5'	N 89°21.7'
Rigel Kent	-0.0	139°43.2'	S 60°55.3'	Adhara	+1.5	255°07.5'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°49.9'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°45.0'				
Hadar	+0.6	148°39.0'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	155°49.4'	S 8°48.5'	176°46.0'	S 8°48.5'	221°32.6'	S 16°56.9'	170°59.2'	S 7°31.5'	194°39.2'	S 16°07.9'	219°57.3'	S 22°07.2'
1	170°51.8'	S 8°47.6'	191°46.1'	S 8°47.6'	236°33.1'	S 16°56.9'	186°01.1'	S 7°31.3'	209°41.4'	S 16°07.8'	234°57.7'	S 22°06.9'
2	185°54.3'	S 8°46.7'	206°46.2'	S 8°46.7'	251°33.6'	S 16°56.8'	201°03.0'	S 7°31.0'	224°43.6'	S 16°07.7'	249°58.2'	S 22°06.6'
3	200°56.8'	S 8°45.7'	221°46.3'	S 8°45.7'	266°34.0'	S 16°56.8'	216°04.9'	S 7°30.8'	239°45.7'	S 16°07.7'	264°58.7'	S 22°06.3'
4	215°59.2'	S 8°44.8'	236°46.5'	S 8°44.8'	281°34.5'	S 16°56.8'	231°06.8'	S 7°30.6'	254°47.9'	S 16°07.6'	279°59.2'	S 22°06.0'
5	231°01.7'	S 8°43.9'	251°46.6'	S 8°43.9'	296°34.9'	S 16°56.7'	246°08.7'	S 7°30.3'	269°50.1'	S 16°07.5'	294°59.7'	S 22°05.7'
6	246°04.2'	S 8°42.9'	266°46.7'	S 8°42.9'	311°35.4'	S 16°56.7'	261°10.6'	S 7°30.1'	284°52.3'	S 16°07.4'	310°00.2'	S 22°05.5'
7	261°06.6'	S 8°42.0'	281°46.8'	S 8°42.0'	326°35.8'	S 16°56.7'	276°12.5'	S 7°29.9'	299°54.5'	S 16°07.3'	325°00.6'	S 22°05.2'
8	276°09.1'	S 8°41.1'	296°46.9'	S 8°41.1'	341°36.3'	S 16°56.6'	291°14.4'	S 7°29.6'	314°56.6'	S 16°07.2'	340°01.1'	S 22°04.9'
9	291°11.6'	S 8°40.1'	311°47.0'	S 8°40.1'	356°36.7'	S 16°56.6'	306°16.3'	S 7°29.4'	329°58.8'	S 16°07.1'	355°01.6'	S 22°04.6'
10	306°14.0'	S 8°39.2'	326°47.1'	S 8°39.2'	11°37.2'	S 16°56.5'	321°18.2'	S 7°29.2'	345°01.0'	S 16°07.1'	10°02.1'	S 22°04.3'
11	321°16.5'	S 8°38.3'	341°47.2'	S 8°38.3'	26°37.6'	S 16°56.5'	336°20.1'	S 7°29.0'	0°03.2'	S 16°07.0'	25°02.6'	S 22°04.0'
12	336°18.9'	S 8°37.3'	356°47.3'	S 8°37.3'	41°38.1'	S 16°56.5'	351°22.0'	S 7°28.7'	15°05.3'	S 16°06.9'	40°03.1'	S 22°03.7'
13	351°21.4'	S 8°36.4'	11°47.4'	S 8°36.4'	56°38.5'	S 16°56.4'	6°23.9'	S 7°28.5'	30°07.5'	S 16°06.8'	55°03.6'	S 22°03.4'
14	6°23.9'	S 8°35.5'	26°47.5'	S 8°35.5'	71°39.0'	S 16°56.4'	21°25.8'	S 7°28.3'	45°09.7'	S 16°06.7'	70°04.0'	S 22°03.1'
15	21°26.3'	S 8°34.5'	41°47.6'	S 8°34.5'	86°39.4'	S 16°56.3'	36°27.7'	S 7°28.0'	60°11.9'	S 16°06.6'	85°04.5'	S 22°02.8'
16	36°28.8'	S 8°33.6'	56°47.7'	S 8°33.6'	101°39.8'	S 16°56.3'	51°29.6'	S 7°27.8'	75°14.0'	S 16°06.5'	100°05.0'	S 22°02.5'
17	51°31.3'	S 8°32.6'	71°47.8'	S 8°32.6'	116°40.3'	S 16°56.2'	66°31.5'	S 7°27.6'	90°16.2'	S 16°06.5'	115°05.5'	S 22°02.2'
18	66°33.7'	S 8°31.7'	86°47.9'	S 8°31.7'	131°40.7'	S 16°56.2'	81°33.4'	S 7°27.3'	105°18.4'	S 16°06.4'	130°06.0'	S 22°01.9'
19	81°36.2'	S 8°30.8'	101°48.0'	S 8°30.8'	146°41.1'	S 16°56.1'	96°35.3'	S 7°27.1'	120°20.6'	S 16°06.3'	145°06.5'	S 22°01.6'
20	96°38.7'	S 8°29.8'	116°48.1'	S 8°29.8'	161°41.6'	S 16°56.1'	111°37.2'	S 7°26.9'	135°22.8'	S 16°06.2'	160°07.0'	S 22°01.3'
21	111°41.1'	S 8°28.9'	131°48.2'	S 8°28.9'	176°42.0'	S 16°56.1'	126°39.1'	S 7°26.6'	150°24.9'	S 16°06.1'	175°07.4'	S 22°01.0'
22	126°43.6'	S 8°27.9'	146°48.3'	S 8°27.9'	191°42.4'	S 16°56.0'	141°41.0'	S 7°26.4'	165°27.1'	S 16°06.0'	190°07.9'	S 22°00.7'
23	141°46.1'	S 8°27.0'	161°48.4'	S 8°27.0'	206°42.8'	S 16°56.0'	156°42.9'	S 7°26.2'	180°29.3'	S 16°05.9'	205°08.4'	S 22°00.4'
		SD 16.1' d 0.9'	v 0.4' d 0.0'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d 0.3'			
Mer. pass.		12 h 12 m 51 s	9 h 14 m		12 h 34 m		11 h 0 m		9 h 20 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Altair	-Venus	-Mars	+Antares	+Rigel Kent	+Hadar	+Acrux
0	240°48.6'	S 26°29.4'	3.5'	-1.1'	59.5'	62°54.4'	41°50.3'	20°14.7'	19°28.7'	24°24.6'	50°08.1'	54°16.9'	65°40.4'
1	255°11.1'	S 26°30.5'	3.5'	-0.9'	59.5'	62°21.3'	41°30.8'	19°44.3'	18°55.4'	25°00.1'	50°25.7'	54°35.4'	65°57.1'
2	269°33.6'	S 26°31.5'	3.4'	-0.8'	59.5'	61°48.2'	41°11.6'	19°14.1'	18°22.0'	25°35.5'	50°43.5'	54°54.2'	66°13.9'
3	283°56.0'	S 26°32.2'	3.4'	-0.6'	59.5'	61°15.0'	40°52.7'	18°44.1'	17°48.7'	26°11.0'	51°01.6'	55°13.1'	66°30.9'
4	298°18.4'	S 26°32.8'	3.4'	-0.4'	59.5'	60°41.9'	40°34.0'	18°14.3'	17°15.5'	26°46.6'	51°19.8'	55°32.2'	66°47.9'
5	312°40.8'	S 26°33.2'	3.4'	-0.2'	59.5'	60°08.7'	40°15.7'	17°44.7'	16°42.2'	27°22.1'	51°38.3'	55°51.5'	67°05.2'
6	327°03.2'	S 26°33.4'	3.4'	-0.0'	59.5'	59°35.6'	39°57.8'	17°15.4'	16°09.0'	27°57.7'	51°57.0'	56°11.0'	67°22.5'
7	341°25.6'	S 26°33.4'	3.4'	0.2'	59.5'	59°02.4'	39°40.1'	16°46.3'	15°35.9'	28°33.2'	52°16.0'	56°30.7'	67°40.0'
8	355°48.0'	S 26°33.2'	3.4'	0.4'	59.5'	58°29.2'	39°22.8'	16°17.5'	15°02.8'	29°08.8'	52°35.1'	56°50.5'	67°57.5'
9	10°10.3'	S 26°32.8'	3.4'	0.6'	59.5'	57°56.1'	39°05.9'	15°49.1'	14°29.8'	29°44.4'	52°54.5'	57°10.5'	68°15.2'
10	24°32.7'	S 26°32.3'	3.4'	0.7'	59.5'	57°22.9'	38°49.3'	15°21.0'	13°56.8'	30°20.1'	53°14.0'	57°30.7'	68°33.1'
11	38°55.1'	S 26°31.5'	3.4'	0.9'	59.5'	56°49.7'	38°33.0'	14°53.4'	13°24.0'	30°55.7'	53°33.8'	57°51.1'	68°51.0'
12	53°17.5'	S 26°30.6'	3.4'	1.1'	59.5'	56°16.5'	38°17.2'	14°26.1'	12°51.2'	31°31.4'	53°53.7'	58°11.6'	69°09.0'
13	67°39.8'	S 26°29.5'	3.4'	1.3'	59.5'	55°43.3'	38°01.7'	13°59.3'	12°18.5'	32°07.0'	54°13.9'	58°32.3'	69°27.2'
14	82°02.2'	S 26°28.2'	3.4'	1.5'	59.5'	55°10.2'		13°33.1'	11°46.0'	32°42.7'	54°34.2'	58°53.1'	69°45.4'
15	96°24.6'	S 26°26.7'	3.4'	1.7'	59.5'	54°37.0'		13°07.4'	11°13.6'	33°18.4'	54°54.7'	59°14.1'	70°03.8'
16	110°47.0'	S 26°25.0'	3.4'	1.9'	59.5'	54°03.8'		12°42.3'	10°41.3'	33°54.1'	55°15.4'	59°35.2'	70°22.3'
17	125°09.5'	S 26°23.2'	3.4'	2.0'	59.6'	53°30.6'		12°17.9'	10°09.2'	34°29.8'	55°36.3'	59°56.5'	70°40.8'
18	139°31.9'	S 26°21.1'	3.5'	2.2'	59.6'	52°57.4'			9°37.4'	35°05.6'	55°57.3'	60°18.0'	70°59.5'
19	153°54.4'	S 26°18.9'	3.5'	2.4'	59.6'	52°24.2'			9°05.8'	35°41.3'	56°18.5'	60°39.5'	71°18.2'
20	168°16.9'	S 26°16.5'	3.5'	2.6'	59.6'	51°51.0'			8°34.6'	36°17.0'	56°39.9'	61°01.2'	71°37.1'
21	182°39.4'	S 26°13.9'	3.5'	2.8'	59.6'	51°17.8'			8°03.7'	36°52.8'	57°01.4'	61°23.1'	71°56.1'
22	197°01.9'	S 26°11.1'	3.6'	3.0'	59.6'	50°44.5'			7°33.2'	37°28.5'	57°23.1'	61°45.0'	72°15.1'
23	211°24.5'	S 26°08.1'	3.6'	3.2'	59.6'	50°11.3'			7°03.3'	38°04.3'	57°44.9'	62°07.1'	72°34.2'
Mer. pass.		8 h 18 m SD 16.2'	phase 27%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.6'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.1'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.1'
Antares	+1.1	112°18.7'	S 26°28.8'	Procyon	+0.4	244°53.1'	N 5°10.0'	Polaris	+2.0	315°17.9'	N 89°21.7'
Rigel Kent	-0.0	139°43.2'	S 60°55.3'	Adhara	+1.5	255°07.5'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°49.9'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°45.0'				
Hadar	+0.6	148°39.0'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	156°48.5'		176°48.6'	S 8°26.1'	221°43.3'	S 16°55.9'	171°44.8'	S 7°26.0'	195°31.5'	S 16°05.9'	220°08.9'	S 22°00.1'
1	171°51.0'		191°48.7'	S 8°25.1'	236°43.7'	S 16°55.9'	186°46.7'	S 7°25.7'	210°33.6'	S 16°05.8'	235°09.4'	S 21°59.8'
2	186°53.4'		206°48.8'	S 8°24.2'	251°44.1'	S 16°55.8'	201°48.6'	S 7°25.5'	225°35.8'	S 16°05.7'	250°09.9'	S 21°59.5'
3	201°55.9'		221°48.9'	S 8°23.2'	266°44.5'	S 16°55.8'	216°50.5'	S 7°25.3'	240°38.0'	S 16°05.6'	265°10.4'	S 21°59.2'
4	216°58.4'		236°49.0'	S 8°22.3'	281°45.0'	S 16°55.7'	231°52.4'	S 7°25.0'	255°40.2'	S 16°05.5'	280°10.8'	S 21°58.9'
5	232°00.8'		251°49.1'	S 8°21.4'	296°45.4'	S 16°55.7'	246°54.3'	S 7°24.8'	270°42.4'	S 16°05.4'	295°11.3'	S 21°58.6'
6	247°03.3'		266°49.2'	S 8°20.4'	311°45.8'	S 16°55.6'	261°56.2'	S 7°24.6'	285°44.5'	S 16°05.3'	310°11.8'	S 21°58.3'
7	262°05.8'		281°49.3'	S 8°19.5'	326°46.2'	S 16°55.6'	276°58.1'	S 7°24.3'	300°46.7'	S 16°05.3'	325°12.3'	S 21°58.0'
8	277°08.2'		296°49.4'	S 8°18.5'	341°46.6'	S 16°55.5'	292°00.0'	S 7°24.1'	315°48.9'	S 16°05.2'	340°12.8'	S 21°57.7'
9	292°10.7'		311°49.5'	S 8°17.6'	356°47.0'	S 16°55.4'	307°01.9'	S 7°23.9'	330°51.1'	S 16°05.1'	355°13.3'	S 21°57.4'
10	307°13.2'		326°49.6'	S 8°16.7'	11°47.4'	S 16°55.4'	322°03.8'	S 7°23.6'	345°53.2'	S 16°05.0'	10°13.8'	S 21°57.1'
11	322°15.6'		341°49.7'	S 8°15.7'	26°47.8'	S 16°55.3'	337°05.7'	S 7°23.4'	0°55.4'	S 16°04.9'	25°14.2'	S 21°56.8'
12	337°18.1'		356°49.9'	S 8°14.8'	41°48.2'	S 16°55.3'	352°07.6'	S 7°23.2'	15°57.6'	S 16°04.8'	40°14.7'	S 21°56.5'
13	352°20.6'		11°50.0'	S 8°13.8'	56°48.6'	S 16°55.2'	7°09.5'	S 7°22.9'	30°59.8'	S 16°04.7'	55°15.2'	S 21°56.1'
14	7°23.0'		26°50.1'	S 8°12.9'	71°49.0'	S 16°55.2'	22°11.4'	S 7°22.7'	46°02.0'	S 16°04.7'	70°15.7'	S 21°55.8'
15	22°25.5'		41°50.2'	S 8°12.0'	86°49.4'	S 16°55.1'	37°13.3'	S 7°22.5'	61°04.1'	S 16°04.6'	85°16.2'	S 21°55.5'
16	37°27.9'		56°50.3'	S 8°11.0'	101°49.8'	S 16°55.0'	52°15.2'	S 7°22.3'	76°06.3'	S 16°04.5'	100°16.7'	S 21°55.2'
17	52°30.4'		71°50.4'	S 8°10.1'	116°50.2'	S 16°55.0'	67°17.1'	S 7°22.0'	91°08.5'	S 16°04.4'	115°17.2'	S 21°54.9'
18	67°32.9'		86°50.5'	S 8°09.1'	131°50.6'	S 16°54.9'	82°19.0'	S 7°21.8'	106°10.7'	S 16°04.3'	130°17.6'	S 21°54.6'
19	82°35.3'		101°50.6'	S 8°08.2'	146°51.0'	S 16°54.9'	97°20.9'	S 7°21.6'	121°12.8'	S 16°04.2'	145°18.1'	S 21°54.3'
20	97°37.8'		116°50.7'	S 8°07.2'	161°51.4'	S 16°54.8'	112°22.8'	S 7°21.3'	136°15.0'	S 16°04.1'	160°18.6'	S 21°54.0'
21	112°40.3'		131°50.9'	S 8°06.3'	176°51.8'	S 16°54.7'	127°24.7'	S 7°21.1'	151°17.2'	S 16°04.1'	175°19.1'	S 21°53.7'
22	127°42.7'		146°51.0'	S 8°05.3'	191°52.2'	S 16°54.7'	142°26.6'	S 7°20.9'	166°19.4'	S 16°04.0'	190°19.6'	S 21°53.4'
23	142°45.2'		161°51.1'	S 8°04.4'	206°52.6'	S 16°54.6'	157°28.5'	S 7°20.6'	181°21.6'	S 16°03.9'	205°20.1'	S 21°53.1'
			SD 16.1' d 0.9'		v 0.4' d 0.1'		v 1.9' d 0.2'		v 2.2' d 0.1'		v 0.5' d 0.3'	
Mer. pass.			12 h 12 m 40 s		9 h 13 m		12 h 31 m		10 h 56 m		9 h 19 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Saturn	-Mars	+Antares	+Rigil Kent	+Hadar	+Acrux	+Spica
0	225°47.1'	S 26°04.9'	3.6'	3.3'	59.6'	49°38.1'	29°51.4'		38°40.1'	58°06.9'	62°29.3'	72°53.4'	84°34.0'
1	240°09.7'	S 26°01.6'	3.7'	3.5'	59.6'	49°04.9'	29°16.2'		39°15.9'	58°29.1'	62°51.7'	73°12.7'	85°09.8'
2	254°32.4'	S 25°58.1'	3.7'	3.7'	59.6'	48°31.7'	28°40.9'		39°51.6'	58°51.4'	63°14.1'	73°32.1'	85°45.6'
3	268°55.1'	S 25°54.4'	3.8'	3.9'	59.6'	47°58.5'	28°05.7'		40°27.4'	59°13.8'	63°36.7'	73°51.6'	86°21.4'
4	283°17.9'	S 25°50.5'	3.8'	4.1'	59.6'	47°25.3'	27°30.4'		41°03.2'	59°36.4'	63°59.4'	74°11.1'	86°57.2'
5	297°40.7'	S 25°46.4'	3.8'	4.2'	59.5'	46°52.2'	26°55.2'		41°39.0'	59°59.0'	64°22.2'	74°30.7'	87°33.0'
6	312°03.5'	S 25°42.2'	3.9'	4.4'	59.5'	46°19.0'	26°20.0'		42°14.8'	60°21.9'	64°45.1'	74°50.4'	88°08.9'
7	326°26.4'	S 25°37.8'	3.9'	4.6'	59.5'	45°45.8'	25°44.9'		42°50.6'	60°44.8'	65°08.1'	75°10.1'	88°44.7'
8	340°49.4'	S 25°33.2'	4.0'	4.8'	59.5'	45°12.6'	25°09.7'		43°26.4'	61°07.9'	65°31.2'	75°30.0'	89°20.5'
9	355°12.4'	S 25°28.4'	4.0'	5.0'	59.5'	44°39.4'	24°34.6'		44°02.3'	61°31.1'	65°54.5'	75°49.9'	89°56.3'
10	9°35.4'	S 25°23.4'	4.1'	5.1'	59.5'	44°06.2'	23°59.5'		44°38.1'	61°54.4'	66°17.8'	76°09.8'	90°32.1'
11	23°58.5'	S 25°18.3'	4.2'	5.3'	59.5'	43°33.1'	23°24.4'		45°13.9'	62°17.9'	66°41.2'	76°29.8'	91°07.9'
12	38°21.7'	S 25°13.0'	4.2'	5.5'	59.5'	42°59.9'	22°49.3'		45°49.7'	62°41.4'	67°04.7'	76°49.9'	91°43.8'
13	52°44.9'	S 25°07.5'	4.3'	5.6'	59.5'	42°26.8'	22°14.3'		46°25.5'	63°05.1'	67°28.3'	77°10.1'	92°19.6'
14	67°08.2'	S 25°01.9'	4.3'	5.8'	59.5'	41°53.6'	21°39.3'		47°01.3'	63°28.8'	67°52.0'	77°30.3'	92°55.4'
15	81°31.5'	S 24°56.1'	4.4'	6.0'	59.5'	41°20.5'	21°04.4'		47°37.2'	63°52.7'	68°15.7'	77°50.5'	93°31.2'
16	95°54.9'	S 24°50.1'	4.5'	6.2'	59.5'	40°47.4'	20°29.5'		48°13.0'	64°16.7'	68°39.6'	78°10.8'	94°07.0'
17	110°18.4'	S 24°43.9'	4.5'	6.3'	59.5'	40°14.2'	19°54.6'		48°48.8'	64°40.7'	69°03.5'	78°31.2'	94°42.8'
18	124°42.0'	S 24°37.6'	4.6'	6.5'	59.5'		19°19.8'		49°24.6'	65°04.9'	69°27.5'	78°51.6'	95°18.6'
19	139°05.6'	S 24°31.1'	4.7'	6.7'	59.5'		18°45.0'		50°00.4'	65°29.1'	69°51.6'	79°12.1'	95°54.4'
20	153°29.3'	S 24°24.5'	4.8'	6.8'	59.5'		18°10.3'	6°45.3'	50°36.2'	65°53.5'	70°15.7'	79°32.6'	96°30.2'
21	167°53.0'	S 24°17.6'	4.8'	7.0'	59.5'		17°35.7'	7°14.8'	51°12.0'	66°17.9'	70°40.0'	79°53.1'	97°06.0'
22	182°16.9'	S 24°10.7'	4.9'	7.1'	59.5'		17°01.1'	7°44.9'	51°47.9'	66°42.4'	71°04.2'	80°13.7'	97°41.8'
23	196°40.8'	S 24°03.5'	5.0'	7.3'	59.5'		16°26.6'	8°15.5'	52°23.7'	67°07.0'	71°28.6'	80°34.4'	98°17.5'
Mer. pass.			9 h 20 m SD 16.2'		phase 18%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.5'	S 29°30.5'	Spica	+1.0	158°24.5'	S 11°16.6'	Betelgeuse	+0.5	270°54.5'	N 7°24.6'
Deneb	+1.2	49°27.8'	N 45°21.3'	Acrux	+0.8	173°02.1'	S 63°13.1'	Capella	+0.1	280°25.2'	N 46°01.3'
Altair	+0.8	62°02.5'	N 8°55.4'	Regulus	+1.4	207°36.6'	N 11°51.5'	Rigel	+0.2	281°06.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°19.9'	N 27°58.4'	Aldebaran	+0.9	290°42.3'	N 16°33.1'
Antares	+1.1	112°18.7'	S 26°28.8'	Procyon	+0.4	244°53.1'	N 5°10.0'	Polaris	+2.0	315°18.3'	N 89°21.7'
Rigil Kent	-0.0	139°43.2'	S 60°55.3'	Adhara	+1.5	255°07.5'	S 29°00.3'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°49.9'	N 19°03.9'	Sirius	-1.4	258°28.1'	S 16°45.0'				
Hadar	+0.6	148°38.9'	S 60°28.5'	Canopus	-0.6	263°53.2'	S 52°42.7'				

