

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	340°22.6'	179°58.8'	N 8°16.5'	143°18.8'	S 7°26.2'	12°01.1'	S 14°05.1'	29°36.2'	S 19°00.8'	168°17.7'	N 4°24.4'
1	355°25.1'	194°59.0'	N 8°15.6'	158°18.6'	S 7°27.5'	27°03.9'	S 14°05.2'	44°38.8'	S 19°00.8'	183°18.7'	N 4°23.7'
2	10°27.6'	209°59.2'	N 8°14.7'	173°18.4'	S 7°28.7'	42°06.6'	S 14°05.3'	59°41.4'	S 19°00.9'	198°19.6'	N 4°23.1'
3	25°30.0'	224°59.4'	N 8°13.8'	188°18.2'	S 7°30.0'	57°09.4'	S 14°05.4'	74°44.1'	S 19°00.9'	213°20.6'	N 4°22.4'
4	40°32.5'	239°59.6'	N 8°12.9'	203°18.0'	S 7°31.2'	72°12.2'	S 14°05.6'	89°46.7'	S 19°01.0'	228°21.6'	N 4°21.8'
5	55°35.0'	254°59.8'	N 8°12.0'	218°17.8'	S 7°32.5'	87°14.9'	S 14°05.7'	104°49.3'	S 19°01.0'	243°22.6'	N 4°21.2'
6	70°37.4'	270°00.0'	N 8°11.1'	233°17.6'	S 7°33.7'	102°17.7'	S 14°05.8'	119°51.9'	S 19°01.0'	258°23.6'	N 4°20.5'
7	85°39.9'	285°00.2'	N 8°10.2'	248°17.4'	S 7°35.0'	117°20.5'	S 14°05.9'	134°54.5'	S 19°01.1'	273°24.6'	N 4°19.9'
8	100°42.3'	300°00.4'	N 8°09.3'	263°17.3'	S 7°36.2'	132°23.2'	S 14°06.0'	149°57.1'	S 19°01.1'	288°25.6'	N 4°19.2'
9	115°44.8'	315°00.6'	N 8°08.4'	278°17.1'	S 7°37.5'	147°26.0'	S 14°06.1'	164°59.7'	S 19°01.2'	303°26.6'	N 4°18.6'
10	130°47.3'	330°00.8'	N 8°07.5'	293°16.9'	S 7°38.7'	162°28.8'	S 14°06.2'	180°02.3'	S 19°01.2'	318°27.6'	N 4°17.9'
11	145°49.7'	345°01.0'	N 8°06.5'	308°16.7'	S 7°40.0'	177°31.5'	S 14°06.3'	195°05.0'	S 19°01.2'	333°28.6'	N 4°17.3'
12	160°52.2'	0°01.2'	N 8°05.6'	323°16.5'	S 7°41.2'	192°34.3'	S 14°06.4'	210°07.6'	S 19°01.3'	348°29.6'	N 4°16.6'
13	175°54.7'	15°01.4'	N 8°04.7'	338°16.3'	S 7°42.5'	207°37.0'	S 14°06.5'	225°10.2'	S 19°01.3'	3°30.6'	N 4°16.0'
14	190°57.1'	30°01.6'	N 8°03.8'	353°16.1'	S 7°43.7'	222°39.8'	S 14°06.6'	240°12.8'	S 19°01.4'	18°31.6'	N 4°15.3'
15	205°59.6'	45°01.8'	N 8°02.9'	8°15.9'	S 7°45.0'	237°42.6'	S 14°06.7'	255°15.4'	S 19°01.4'	33°32.6'	N 4°14.7'
16	221°02.1'	60°02.0'	N 8°02.0'	23°15.7'	S 7°46.2'	252°45.3'	S 14°06.8'	270°18.0'	S 19°01.4'	48°33.6'	N 4°14.1'
17	236°04.5'	75°02.2'	N 8°01.1'	38°15.5'	S 7°47.5'	267°48.1'	S 14°06.9'	285°20.6'	S 19°01.5'	63°34.6'	N 4°13.4'
18	251°07.0'	90°02.4'	N 8°00.2'	53°15.3'	S 7°48.7'	282°50.9'	S 14°07.0'	300°23.2'	S 19°01.5'	78°35.6'	N 4°12.8'
19	266°09.5'	105°02.6'	N 7°59.3'	68°15.1'	S 7°50.0'	297°53.6'	S 14°07.1'	315°25.8'	S 19°01.5'	93°36.6'	N 4°12.1'
20	281°11.9'	120°02.8'	N 7°58.4'	83°14.9'	S 7°51.2'	312°56.4'	S 14°07.3'	330°28.5'	S 19°01.6'	108°37.6'	N 4°11.5'
21	296°14.4'	135°03.0'	N 7°57.4'	98°14.7'	S 7°52.5'	327°59.2'	S 14°07.4'	345°31.1'	S 19°01.6'	123°38.6'	N 4°10.8'
22	311°16.8'	150°03.2'	N 7°56.5'	113°14.5'	S 7°53.7'	343°01.9'	S 14°07.5'	0°33.7'	S 19°01.7'	138°39.6'	N 4°10.2'
23	326°19.3'	165°03.4'	N 7°55.6'	128°14.3'	S 7°55.0'	358°04.7'	S 14°07.6'	15°36.3'	S 19°01.7'	153°40.6'	N 4°09.5'
		SD 15.8' d -0.9'		v -0.2' d -1.2'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d -0.6'	
Mer. pass.		11 h 59 m 56 s		14 h 27 m		23 h 8 m		21 h 58 m		12 h 46 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Capella	+Rigel	+Achernar
0	253°22.3'	N 25°14.1'	10.5'	3.0'	54.5'	71°30.3'	33°34.5'	26°35.0'		18°39.8'			97°29.3'
1	267°51.8'	N 25°17.1'	10.4'	2.9'	54.5'	71°02.9'	33°11.0'	26°05.2'		19°08.3'			97°46.5'
2	282°21.2'	N 25°20.0'	10.4'	2.8'	54.5'	70°35.4'	32°47.5'	25°35.4'		19°36.9'			98°03.6'
3	296°50.6'	N 25°22.8'	10.3'	2.7'	54.6'	70°07.9'	32°24.2'	25°05.6'		20°05.6'			98°20.7'
4	311°19.9'	N 25°25.4'	10.3'	2.5'	54.6'	69°40.4'	32°01.1'	24°35.8'		20°34.3'			98°37.9'
5	325°49.2'	N 25°28.0'	10.3'	2.4'	54.6'	69°12.9'	31°38.1'	24°06.0'		21°03.2'			98°54.9'
6	340°18.5'	N 25°30.4'	10.2'	2.3'	54.6'	68°45.4'	31°15.2'	23°36.2'		21°32.1'			99°12.0'
7	354°47.7'	N 25°32.7'	10.2'	2.2'	54.6'	68°17.9'	30°52.6'	23°06.3'		22°01.0'			99°29.1'
8	9°16.9'	N 25°34.8'	10.1'	2.0'	54.6'	67°50.3'	30°30.1'	22°36.5'		22°30.0'			99°46.1'
9	23°46.0'	N 25°36.9'	10.1'	1.9'	54.6'	67°22.7'	30°07.8'	22°06.6'		22°59.1'			100°03.1'
10	38°15.1'	N 25°38.8'	10.1'	1.8'	54.7'	66°55.1'	29°45.7'	21°36.8'		23°28.3'			100°20.1'
11	52°44.1'	N 25°40.6'	10.0'	1.7'	54.7'	66°27.5'	29°23.8'	21°06.9'		23°57.5'			100°37.1'
12	67°13.2'	N 25°42.2'	10.0'	1.5'	54.7'	65°59.9'	29°02.1'	20°37.0'		24°26.7'			100°54.0'
13	81°42.1'	N 25°43.8'	9.9'	1.4'	54.7'	65°32.2'	28°40.7'	20°07.2'		24°56.1'			101°10.9'
14	96°11.1'	N 25°45.2'	9.9'	1.3'	54.7'	65°04.5'	28°19.4'	19°37.3'		25°25.4'			101°27.8'
15	110°40.0'	N 25°46.5'	9.9'	1.2'	54.7'	64°36.9'	27°58.4'	19°07.4'		25°54.8'		37°31.4'	101°44.7'
16	125°08.8'	N 25°47.6'	9.8'	1.0'	54.8'	64°09.1'	27°37.7'	18°37.5'		26°24.3'		37°46.5'	102°01.6'
17	139°37.7'	N 25°48.6'	9.8'	0.9'	54.8'	63°41.4'	27°17.2'	18°07.6'		26°53.8'		38°01.9'	102°18.4'
18	154°06.5'	N 25°49.5'	9.8'	0.8'	54.8'	63°13.7'	26°57.0'	17°37.7'		27°23.4'		38°17.5'	102°35.2'
19	168°35.2'	N 25°50.3'	9.7'	0.6'	54.8'	62°45.9'	26°37.1'	17°07.9'		27°53.0'	24°46.0'	38°33.4'	102°51.9'
20	183°04.0'	N 25°50.9'	9.7'	0.5'	54.8'	62°18.1'	26°17.4'	16°38.0'		28°22.7'	25°01.2'	38°49.6'	103°08.7'
21	197°32.7'	N 25°51.4'	9.7'	0.4'	54.9'	61°50.3'	25°58.1'	16°08.1'		28°52.4'	25°16.8'	39°06.0'	103°25.4'
22	212°01.4'	N 25°51.8'	9.6'	0.2'	54.9'	61°22.4'	25°39.0'	15°38.3'	20°50.7'	29°22.1'	25°32.8'	39°22.7'	103°42.0'
23	226°30.0'	N 25°52.1'	9.6'	0.1'	54.9'	60°54.6'	25°20.4'	15°08.4'	21°06.2'	29°51.9'	25°49.3'	39°39.6'	103°58.7'
Mer. pass.		7 h 22 m SD 14.9'		phase 34%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.2'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.6'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.8'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°07.3'	N 89°21.0'
Rigel Kent	-0.0	139°44.3'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.7'	Canopus	-0.6	263°53.9'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	341°21.8'	180°03.6'	N 7°54.7'	143°14.1'	S 7°56.2'		13°07.4'	S 14°07.7'		30°38.9'	S 19°01.7'		168°41.6'	N 4°08.9'				
1	356°24.2'	195°03.8'	N 7°53.8'	158°13.9'	S 7°57.4'		28°10.2'	S 14°07.8'		45°41.5'	S 19°01.8'		183°42.6'	N 4°08.2'				
2	11°26.7'	210°04.0'	N 7°52.9'	173°13.7'	S 7°58.7'		43°13.0'	S 14°07.9'		60°44.1'	S 19°01.8'		198°43.6'	N 4°07.6'				
3	26°29.2'	225°04.2'	N 7°52.0'	188°13.5'	S 7°59.9'		58°15.7'	S 14°08.0'		75°46.7'	S 19°01.9'		213°44.5'	N 4°07.0'				
4	41°31.6'	240°04.4'	N 7°51.1'	203°13.3'	S 8°01.2'		73°18.5'	S 14°08.1'		90°49.3'	S 19°01.9'		228°45.5'	N 4°06.3'				
5	56°34.1'	255°04.6'	N 7°50.1'	218°13.1'	S 8°02.4'		88°21.3'	S 14°08.2'		105°51.9'	S 19°01.9'		243°46.5'	N 4°05.7'				
6	71°36.6'	270°04.8'	N 7°49.2'	233°12.9'	S 8°03.7'		103°24.0'	S 14°08.3'		120°54.6'	S 19°02.0'		258°47.5'	N 4°05.0'				
7	86°39.0'	285°05.0'	N 7°48.3'	248°12.7'	S 8°04.9'		118°26.8'	S 14°08.4'		135°57.2'	S 19°02.0'		273°48.5'	N 4°04.4'				
8	101°41.5'	300°05.2'	N 7°47.4'	263°12.6'	S 8°06.2'		133°29.5'	S 14°08.5'		150°59.8'	S 19°02.0'		288°49.5'	N 4°03.7'				
9	116°44.0'	315°05.4'	N 7°46.5'	278°12.4'	S 8°07.4'		148°32.3'	S 14°08.6'		166°02.4'	S 19°02.1'		303°50.5'	N 4°03.1'				
10	131°46.4'	330°05.6'	N 7°45.6'	293°12.2'	S 8°08.7'		163°35.1'	S 14°08.7'		181°05.0'	S 19°02.1'		318°51.5'	N 4°02.4'				
11	146°48.9'	345°05.8'	N 7°44.7'	308°12.0'	S 8°09.9'		178°37.8'	S 14°08.8'		196°07.6'	S 19°02.2'		333°52.5'	N 4°01.8'				
12	161°51.3'	0°06.0'	N 7°43.8'	323°11.8'	S 8°11.1'		193°40.6'	S 14°08.9'		211°10.2'	S 19°02.2'		348°53.5'	N 4°01.1'				
13	176°53.8'	15°06.2'	N 7°42.8'	338°11.6'	S 8°12.4'		208°43.4'	S 14°09.0'		226°12.8'	S 19°02.2'		3°54.5'	N 4°00.5'				
14	191°56.3'	30°06.4'	N 7°41.9'	353°11.4'	S 8°13.6'		223°46.1'	S 14°09.1'		241°15.4'	S 19°02.3'		18°55.5'	N 3°59.8'				
15	206°58.7'	45°06.6'	N 7°41.0'	8°11.2'	S 8°14.9'		238°48.9'	S 14°09.2'		256°18.0'	S 19°02.3'		33°56.5'	N 3°59.2'				
16	222°01.2'	60°06.8'	N 7°40.1'	23°11.0'	S 8°16.1'		253°51.6'	S 14°09.4'		271°20.6'	S 19°02.4'		48°57.5'	N 3°58.5'				
17	237°03.7'	75°07.0'	N 7°39.2'	38°10.8'	S 8°17.4'		268°54.4'	S 14°09.5'		286°23.2'	S 19°02.4'		63°58.5'	N 3°57.9'				
18	252°06.1'	90°07.2'	N 7°38.3'	53°10.6'	S 8°18.6'		283°57.2'	S 14°09.6'		301°25.9'	S 19°02.4'		78°59.5'	N 3°57.3'				
19	267°08.6'	105°07.4'	N 7°37.3'	68°10.4'	S 8°19.8'		298°59.9'	S 14°09.7'		316°28.5'	S 19°02.5'		94°00.5'	N 3°56.6'				
20	282°11.1'	120°07.6'	N 7°36.4'	83°10.2'	S 8°21.1'		314°02.7'	S 14°09.8'		331°31.1'	S 19°02.5'		109°01.5'	N 3°56.0'				
21	297°13.5'	135°07.8'	N 7°35.5'	98°10.0'	S 8°22.3'		329°05.4'	S 14°09.9'		346°33.7'	S 19°02.5'		124°02.5'	N 3°55.3'				
22	312°16.0'	150°08.0'	N 7°34.6'	113°09.8'	S 8°23.6'		344°08.2'	S 14°10.0'		1°36.3'	S 19°02.6'		139°03.5'	N 3°54.7'				
23	327°18.5'	165°08.2'	N 7°33.7'	128°09.6'	S 8°24.8'		359°11.0'	S 14°10.1'		16°38.9'	S 19°02.6'		154°04.5'	N 3°54.0'				
		SD 15.8'	<i>d</i> -0.9'		<i>v</i> -0.2'	<i>d</i> -1.2'		<i>v</i> 2.8'	<i>d</i> -0.1'		<i>v</i> 2.6'	<i>d</i> -0.0'		<i>v</i> 1.0'	<i>d</i> -0.6'			
Mer. pass.		11 h 59 m 37 s		14 h 27 m			23 h 3 m			21 h 54 m			12 h 44 m					

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Sun	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	240°58.6'	N 25°52.2'	9.6'	-0.0'	54.9'	60°26.7'		25°02.0'	14°38.6'	21°22.2'	26°06.1'	30°21.7'	39°56.7'
1	255°27.2'	N 25°52.2'	9.6'	-0.1'	54.9'	59°58.8'		24°44.0'	14°08.8'	21°38.8'	26°23.3'	30°51.6'	40°14.1'
2	269°55.8'	N 25°52.0'	9.5'	-0.3'	54.9'	59°30.9'		24°26.4'	13°39.0'	21°55.8'	26°41.0'	31°21.5'	40°31.7'
3	284°24.3'	N 25°51.7'	9.5'	-0.4'	55.0'	59°02.9'		24°09.2'	13°09.2'	22°13.3'	26°59.0'	31°51.5'	40°49.5'
4	298°52.8'	N 25°51.3'	9.5'	-0.5'	55.0'	58°34.9'		23°52.3'	12°39.5'	22°31.3'	27°17.3'	32°21.5'	41°07.5'
5	313°21.3'	N 25°50.8'	9.5'	-0.7'	55.0'	58°06.9'		23°35.9'	12°09.8'	22°49.7'	27°36.0'	32°51.5'	41°25.8'
6	327°49.8'	N 25°50.1'	9.5'	-0.8'	55.0'	57°38.9'		23°20.0'	11°40.2'	23°08.5'	27°55.0'	33°21.6'	41°44.3'
7	342°18.3'	N 25°49.3'	9.4'	-0.9'	55.1'	57°10.9'		23°04.4'	11°10.7'	23°27.7'	28°14.4'	33°51.7'	42°02.9'
8	356°46.7'	N 25°48.4'	9.4'	-1.1'	55.1'	56°42.8'			10°41.2'	23°47.3'	28°34.1'	34°21.8'	42°21.8'
9	11°15.1'	N 25°47.3'	9.4'	-1.2'	55.1'	56°14.7'	46°14.5'		10°11.8'	24°07.3'	28°54.1'	34°52.0'	42°40.9'
10	25°43.5'	N 25°46.1'	9.4'	-1.3'	55.1'	55°46.6'	45°43.9'		9°42.5'	24°27.7'	29°14.4'	35°22.2'	43°00.2'
11	40°11.9'	N 25°44.8'	9.4'	-1.5'	55.1'	55°18.5'	44°13.4'		9°13.3'	24°48.4'	29°35.0'	35°52.5'	43°19.6'
12	54°40.2'	N 25°43.3'	9.3'	-1.6'	55.2'	54°50.3'	44°42.8'		8°44.3'	25°09.4'	29°55.8'	36°22.8'	43°39.3'
13	69°08.6'	N 25°41.7'	9.3'	-1.7'	55.2'	54°22.1'	44°12.3'		8°15.4'	25°30.8'	30°17.0'	36°53.2'	43°59.2'
14	83°36.9'	N 25°39.9'	9.3'	-1.9'	55.2'	53°53.9'	43°41.6'		7°46.8'	25°52.5'	30°38.4'	37°23.5'	44°19.2'
15	98°05.2'	N 25°38.1'	9.3'	-2.0'	55.2'	53°25.6'	43°11.0'		7°18.5'	26°14.5'	31°00.1'	37°53.9'	44°39.4'
16	112°33.5'	N 25°36.1'	9.3'	-2.1'	55.2'	52°57.4'	42°40.4'		6°50.5'	26°36.8'	31°22.0'	38°24.4'	44°59.8'
17	127°01.8'	N 25°33.9'	9.3'	-2.3'	55.3'	52°29.1'	42°09.7'		6°22.9'	26°59.4'	31°44.1'	38°54.9'	45°20.4'
18	141°30.1'	N 25°31.6'	9.3'	-2.4'	55.3'	52°00.8'	41°39.0'		5°55.8'	27°22.2'	32°06.5'	39°25.4'	45°41.1'
19	155°58.4'	N 25°29.2'	9.3'	-2.5'	55.3'	51°32.4'	41°08.2'			27°45.3'	32°29.2'	39°56.0'	46°02.0'
20	170°26.6'	N 25°26.7'	9.3'	-2.7'	55.3'	51°04.0'	40°37.5'			28°08.7'	32°52.0'	40°26.6'	46°23.1'
21	184°54.9'	N 25°24.0'	9.3'	-2.8'	55.4'	50°35.7'	40°06.7'			28°32.3'	33°15.1'	40°57.2'	46°44.3'
22	199°23.2'	N 25°21.2'	9.2'	-3.0'	55.4'	50°07.2'	39°35.9'			28°56.1'	33°38.4'	41°27.9'	47°05.7'
23	213°51.4'	N 25°18.2'	9.2'	-3.1'	55.4'	49°38.8'	39°05.1'			29°20.2'	34°01.8'	41°58.6'	47°27.2'
Mer. pass.	8 h 13 m SD 15.0'	phase 25%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.2'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.6'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.8'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°06.7'	N 89°21.0'
Rigil Kent	-0.0	139°44.3'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	342°20.9'	180°08.4' N 7°32.8'	143°09.4'	S 8°26.0'	14°13.7'	S 14°10.2'	31°41.5'	S 19°02.7'	169°05.5'	N 3°53.4'		
1	357°23.4'	195°08.6' N 7°31.8'	158°09.2'	S 8°27.3'	29°16.5'	S 14°10.3'	46°44.1'	S 19°02.7'	184°06.5'	N 3°52.7'		
2	12°25.8'	210°08.9' N 7°30.9'	173°09.0'	S 8°28.5'	44°19.2'	S 14°10.4'	61°46.7'	S 19°02.7'	199°07.4'	N 3°52.1'		
3	27°28.3'	225°09.1' N 7°30.0'	188°08.8'	S 8°29.8'	59°22.0'	S 14°10.5'	76°49.3'	S 19°02.8'	214°08.4'	N 3°51.4'		
4	42°30.8'	240°09.3' N 7°29.1'	203°08.6'	S 8°31.0'	74°24.8'	S 14°10.6'	91°51.9'	S 19°02.8'	229°09.4'	N 3°50.8'		
5	57°33.2'	255°09.5' N 7°28.2'	218°08.4'	S 8°32.2'	89°27.5'	S 14°10.7'	106°54.5'	S 19°02.8'	244°10.4'	N 3°50.1'		
6	72°35.7'	270°09.7' N 7°27.3'	233°08.2'	S 8°33.5'	104°30.3'	S 14°10.8'	121°57.1'	S 19°02.9'	259°11.4'	N 3°49.5'		
7	87°38.2'	285°09.9' N 7°26.3'	248°08.0'	S 8°34.7'	119°33.0'	S 14°10.9'	136°59.7'	S 19°02.9'	274°12.4'	N 3°48.8'		
8	102°40.6'	300°10.1' N 7°25.4'	263°07.8'	S 8°36.0'	134°35.8'	S 14°11.0'	152°02.4'	S 19°03.0'	289°13.4'	N 3°48.2'		
9	117°43.1'	315°10.3' N 7°24.5'	278°07.6'	S 8°37.2'	149°38.5'	S 14°11.1'	167°05.0'	S 19°03.0'	304°14.4'	N 3°47.5'		
10	132°45.6'	330°10.5' N 7°23.6'	293°07.4'	S 8°38.4'	164°41.3'	S 14°11.2'	182°07.6'	S 19°03.0'	319°15.4'	N 3°46.9'		
11	147°48.0'	345°10.7' N 7°22.7'	308°07.2'	S 8°39.7'	179°44.1'	S 14°11.3'	197°10.2'	S 19°03.1'	334°16.4'	N 3°46.2'		
12	162°50.5'	0°10.9' N 7°21.7'	323°07.0'	S 8°40.9'	194°46.8'	S 14°11.4'	212°12.8'	S 19°03.1'	349°17.4'	N 3°45.6'		
13	177°52.9'	15°11.1' N 7°20.8'	338°06.8'	S 8°42.1'	209°49.6'	S 14°11.5'	227°15.4'	S 19°03.1'	4°18.4'	N 3°44.9'		
14	192°55.4'	30°11.3' N 7°19.9'	353°06.6'	S 8°43.4'	224°52.3'	S 14°11.6'	242°18.0'	S 19°03.2'	19°19.4'	N 3°44.3'		
15	207°57.9'	45°11.5' N 7°19.0'	8°06.4'	S 8°44.6'	239°55.1'	S 14°11.7'	257°20.6'	S 19°03.2'	34°20.4'	N 3°43.6'		
16	223°00.3'	60°11.7' N 7°18.1'	23°06.2'	S 8°45.9'	254°57.9'	S 14°11.8'	272°23.2'	S 19°03.3'	49°21.4'	N 3°43.0'		
17	238°02.8'	75°11.9' N 7°17.1'	38°06.0'	S 8°47.1'	270°00.6'	S 14°11.9'	287°25.8'	S 19°03.3'	64°22.4'	N 3°42.4'		
18	253°05.3'	90°12.1' N 7°16.2'	53°05.8'	S 8°48.3'	285°03.4'	S 14°12.1'	302°28.4'	S 19°03.3'	79°23.4'	N 3°41.7'		
19	268°07.7'	105°12.3' N 7°15.3'	68°05.6'	S 8°49.6'	300°06.1'	S 14°12.2'	317°31.0'	S 19°03.4'	94°24.4'	N 3°41.1'		
20	283°10.2'	120°12.5' N 7°14.4'	83°05.4'	S 8°50.8'	315°08.9'	S 14°12.3'	332°33.6'	S 19°03.4'	109°25.4'	N 3°40.4'		
21	298°12.7'	135°12.7' N 7°13.5'	98°05.2'	S 8°52.0'	330°11.6'	S 14°12.4'	347°36.2'	S 19°03.4'	124°26.4'	N 3°39.8'		
22	313°15.1'	150°12.9' N 7°12.5'	113°05.0'	S 8°53.3'	345°14.4'	S 14°12.5'	2°38.8'	S 19°03.5'	139°27.4'	N 3°39.1'		
23	328°17.6'	165°13.1' N 7°11.6'	128°04.8'	S 8°54.5'	0°17.2'	S 14°12.6'	17°41.4'	S 19°03.5'	154°28.4'	N 3°38.5'		
		SD 15.8' d -0.9'	v -0.2' d -1.2'		v 2.8' d -0.1'		v 2.6' d -0.0'		v 1.0' d -0.6'			
Mer. pass.		11 h 59 m 17 s	14 h 28 m		22 h 59 m		21 h 49 m		12 h 43 m			

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel	+Achernar
0	228°19.6'	N 25°15.1'	9.2'	-3.2'	55.4'	49°10.3'	38°34.2'		29°44.4'	34°25.5'	42°29.3'	47°48.9'	110°40.3'
1	242°47.9'	N 25°11.9'	9.2'	-3.4'	55.5'	48°41.8'	38°03.4'		30°08.9'	34°49.4'	43°00.1'	48°10.8'	110°55.7'
2	257°16.1'	N 25°08.5'	9.2'	-3.5'	55.5'	48°13.3'	37°32.5'		30°33.6'	35°13.5'	43°30.9'	48°32.8'	111°11.0'
3	271°44.4'	N 25°05.1'	9.2'	-3.6'	55.5'	47°44.7'	37°01.5'		30°58.6'	35°37.7'	44°01.8'	48°54.9'	111°26.2'
4	286°12.6'	N 25°01.4'	9.2'	-3.8'	55.5'	47°16.1'	36°30.6'		31°23.6'	36°02.1'	44°32.7'	49°17.2'	111°41.3'
5	300°40.8'	N 24°57.7'	9.2'	-3.9'	55.6'	46°47.5'	35°59.6'		31°48.9'	36°26.7'	45°03.6'	49°39.6'	111°56.4'
6	315°09.1'	N 24°53.8'	9.2'	-4.0'	55.6'	46°18.9'	35°28.6'		32°14.4'	36°51.5'	45°34.6'	50°02.2'	
7	329°37.3'	N 24°49.7'	9.2'	-4.2'	55.6'	45°50.2'	34°57.6'		32°40.0'	37°16.4'	46°05.5'	50°24.9'	
8	344°05.6'	N 24°45.6'	9.2'	-4.3'	55.6'	45°21.5'	34°26.6'		33°05.9'	37°41.5'	46°36.6'	50°47.7'	
9	358°33.8'	N 24°41.3'	9.3'	-4.4'	55.7'	44°52.8'	33°55.5'		33°31.8'	38°06.8'	47°07.7'	51°10.7'	
10	13°02.1'	N 24°36.8'	9.3'	-4.6'	55.7'	44°24.0'	33°24.4'		33°58.0'	38°32.2'	47°38.8'	51°33.8'	
11	27°30.3'	N 24°32.3'	9.3'	-4.7'	55.7'	43°55.2'	32°53.3'		34°24.3'	38°57.7'	48°09.9'	51°57.0'	
12	41°58.6'	N 24°27.6'	9.3'	-4.8'	55.7'	43°26.4'	32°22.2'		34°50.7'	39°23.5'	48°41.1'	52°20.4'	
13	56°26.9'	N 24°22.7'	9.3'	-5.0'	55.8'	42°57.6'	31°51.1'		35°17.3'	39°49.3'	49°12.3'	52°43.9'	
14	70°55.2'	N 24°17.8'	9.3'	-5.1'	55.8'	42°28.7'	31°19.9'	6°03.0'	35°44.0'	40°15.3'	49°43.6'	53°07.5'	
15	85°23.5'	N 24°12.7'	9.3'	-5.2'	55.8'	41°59.8'	30°48.7'	6°30.8'	36°10.9'	40°41.4'	50°14.8'	53°31.2'	
16	99°51.8'	N 24°07.4'	9.3'	-5.4'	55.8'	41°30.9'	30°17.5'	6°59.2'	36°37.9'	41°07.7'	50°46.2'	53°55.0'	
17	114°20.1'	N 24°02.1'	9.3'	-5.5'	55.9'	41°02.0'	29°46.2'	7°28.0'	37°05.1'	41°34.0'	51°17.5'	54°18.9'	
18	128°48.4'	N 23°56.6'	9.3'	-5.6'	55.9'	40°33.0'	29°15.0'	7°57.2'	37°32.3'	42°00.5'	51°48.9'	54°43.0'	
19	143°16.8'	N 23°51.0'	9.4'	-5.8'	55.9'	40°04.0'	28°43.7'	8°26.8'	37°59.7'	42°27.2'	52°20.4'	55°07.2'	
20	157°45.1'	N 23°45.2'	9.4'	-5.9'	56.0'		28°12.4'	8°56.6'	38°27.2'	42°53.9'	52°51.8'	55°31.5'	
21	172°13.5'	N 23°39.3'	9.4'	-6.0'	56.0'		27°41.1'	9°26.6'	38°54.9'	43°20.8'	53°23.4'	55°55.9'	
22	186°41.9'	N 23°33.3'	9.4'	-6.2'	56.0'		27°09.8'	9°56.9'	39°22.6'	43°47.8'	53°54.9'	56°20.3'	
23	201°10.3'	N 23°27.1'	9.4'	-6.3'	56.0'		26°38.4'	10°27.3'	39°50.5'	44°14.9'	54°26.5'	56°45.0'	
Mer. pass.		9 h 6 m SD 15.1'	phase 17%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.2'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.6'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.8'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°06.2'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.6'				
Hadar	+0.6	148°40.2'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	343°20.1'	180°13.4'	N 7°10.7'	143°04.6'	S 8°55.7'	15°19.9'	S 14°12.7'	32°44.0'	S 19°03.6'	169°29.4'	N 3°37.8'			
1	358°22.5'	195°13.6'	N 7°09.8'	158°04.4'	S 8°57.0'	30°22.7'	S 14°12.8'	47°46.6'	S 19°03.6'	184°30.3'	N 3°37.2'			
2	13°25.0'	210°13.8'	N 7°08.8'	173°04.1'	S 8°58.2'	45°25.4'	S 14°12.9'	62°49.2'	S 19°03.6'	199°31.3'	N 3°36.5'			
3	28°27.4'	225°14.0'	N 7°07.9'	188°03.9'	S 8°59.4'	60°28.2'	S 14°13.0'	77°51.8'	S 19°03.7'	214°32.3'	N 3°35.9'			
4	43°29.9'	240°14.2'	N 7°07.0'	203°03.7'	S 9°00.7'	75°30.9'	S 14°13.1'	92°54.5'	S 19°03.7'	229°33.3'	N 3°35.2'			
5	58°32.4'	255°14.4'	N 7°06.1'	218°03.5'	S 9°01.9'	90°33.7'	S 14°13.2'	107°57.1'	S 19°03.7'	244°34.3'	N 3°34.6'			
6	73°34.8'	270°14.6'	N 7°05.2'	233°03.3'	S 9°03.1'	105°36.5'	S 14°13.3'	122°59.7'	S 19°03.8'	259°35.3'	N 3°33.9'			
7	88°37.3'	285°14.8'	N 7°04.2'	248°03.1'	S 9°04.4'	120°39.2'	S 14°13.4'	138°02.3'	S 19°03.8'	274°36.3'	N 3°33.3'			
8	103°39.8'	300°15.0'	N 7°03.3'	263°02.9'	S 9°05.6'	135°42.0'	S 14°13.5'	153°04.9'	S 19°03.8'	289°37.3'	N 3°32.6'			
9	118°42.2'	315°15.2'	N 7°02.4'	278°02.7'	S 9°06.8'	150°44.7'	S 14°13.6'	168°07.5'	S 19°03.9'	304°38.3'	N 3°32.0'			
10	133°44.7'	330°15.4'	N 7°01.5'	293°02.5'	S 9°08.0'	165°47.5'	S 14°13.7'	183°10.1'	S 19°03.9'	319°39.3'	N 3°31.3'			
11	148°47.2'	345°15.6'	N 7°00.5'	308°02.3'	S 9°09.3'	180°50.2'	S 14°13.8'	198°12.7'	S 19°04.0'	334°40.3'	N 3°30.7'			
12	163°49.6'	0°15.8'	N 6°59.6'	323°02.1'	S 9°10.5'	195°53.0'	S 14°13.9'	213°15.3'	S 19°04.0'	349°41.3'	N 3°30.0'			
13	178°52.1'	15°16.0'	N 6°58.7'	338°01.9'	S 9°11.7'	210°55.7'	S 14°14.0'	228°17.9'	S 19°04.0'	4°42.3'	N 3°29.4'			
14	193°54.6'	30°16.2'	N 6°57.8'	353°01.7'	S 9°13.0'	225°58.5'	S 14°14.1'	243°20.5'	S 19°04.1'	19°43.3'	N 3°28.7'			
15	208°57.0'	45°16.5'	N 6°56.8'	8°01.5'	S 9°14.2'	241°01.2'	S 14°14.2'	258°23.1'	S 19°04.1'	34°44.3'	N 3°28.1'			
16	223°59.5'	60°16.7'	N 6°55.9'	23°01.3'	S 9°15.4'	256°04.0'	S 14°14.3'	273°25.7'	S 19°04.1'	49°45.3'	N 3°27.4'			
17	239°01.9'	75°16.9'	N 6°55.0'	38°01.1'	S 9°16.7'	271°06.8'	S 14°14.4'	288°28.3'	S 19°04.2'	64°46.3'	N 3°26.8'			
18	254°04.4'	90°17.1'	N 6°54.1'	53°00.9'	S 9°17.9'	286°09.5'	S 14°14.5'	303°30.9'	S 19°04.2'	79°47.3'	N 3°26.1'			
19	269°06.9'	105°17.3'	N 6°53.1'	68°00.7'	S 9°19.1'	301°12.3'	S 14°14.6'	318°33.5'	S 19°04.3'	94°48.3'	N 3°25.5'			
20	284°09.3'	120°17.5'	N 6°52.2'	83°00.5'	S 9°20.3'	316°15.0'	S 14°14.7'	333°36.1'	S 19°04.3'	109°49.3'	N 3°24.8'			
21	299°11.8'	135°17.7'	N 6°51.3'	98°00.3'	S 9°21.6'	331°17.8'	S 14°14.8'	348°38.7'	S 19°04.3'	124°50.3'	N 3°24.2'			
22	314°14.3'	150°17.9'	N 6°50.4'	113°00.1'	S 9°22.8'	346°20.5'	S 14°14.9'	3°41.3'	S 19°04.4'	139°51.2'	N 3°23.5'			
23	329°16.7'	165°18.1'	N 6°49.4'	127°59.8'	S 9°24.0'	1°23.3'	S 14°15.0'	18°43.9'	S 19°04.4'	154°52.2'	N 3°22.9'			
		SD 15.9'	<i>d</i> -0.9'	<i>v</i> -0.2'	<i>d</i> -1.2'	<i>v</i> 2.8'	<i>d</i> -0.1'	<i>v</i> 2.6'	<i>d</i> -0.0'	<i>v</i> 1.0'	<i>d</i> -0.6'			
Mer. pass.		11 h 58 m 58 s		14 h 28 m		22 h 54 m		21 h 45 m		12 h 41 m				

h	Moon				Lunar distance								
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Capella	+Sirius	+Aldebaran	+Rigel
0	215°38.7'	N 23°20.9'	9.4'	-6.4'	56.1'	26°07.1'	10°57.9'		40°18.5'	44°42.1'		54°58.1'	57°09.7'
1	230°07.1'	N 23°14.4'	9.5'	-6.5'	56.1'	25°35.7'	11°28.7'		40°46.6'	45°09.4'		55°29.8'	57°34.5'
2	244°35.6'	N 23°07.9'	9.5'	-6.7'	56.1'	25°04.3'	11°59.6'		41°14.8'	45°36.9'		56°01.5'	57°59.4'
3	259°04.1'	N 23°01.2'	9.5'	-6.8'	56.1'	24°32.9'	12°30.6'	22°33.3'	41°43.1'	46°04.4'		56°33.2'	58°24.4'
4	273°32.6'	N 22°54.4'	9.5'	-6.9'	56.2'	24°01.5'	13°01.7'	22°48.4'	42°11.5'	46°32.0'		57°05.0'	58°49.5'
5	288°01.1'	N 22°47.5'	9.5'	-7.1'	56.2'	23°30.1'	13°32.9'	23°04.1'	42°40.0'	46°59.8'		57°36.8'	59°14.7'
6	302°29.7'	N 22°40.5'	9.6'	-7.2'	56.2'	22°58.7'	14°04.2'	23°20.4'	43°08.6'	47°27.6'		58°08.6'	59°40.0'
7	316°58.2'	N 22°33.3'	9.6'	-7.3'	56.3'	22°27.3'	14°35.6'	23°37.2'	43°37.3'	47°55.6'		58°40.5'	60°05.4'
8	331°26.8'	N 22°26.0'	9.6'	-7.4'	56.3'	21°55.8'	15°07.1'	23°54.5'	44°06.1'	48°23.6'		59°12.4'	60°30.8'
9	345°55.4'	N 22°18.5'	9.6'	-7.6'	56.3'	21°24.4'	15°38.6'	24°12.3'	44°34.9'	48°51.7'		59°44.3'	60°56.4'
10	0°24.1'	N 22°11.0'	9.7'	-7.7'	56.3'	20°53.0'	16°10.3'	24°30.6'	45°03.9'	49°19.9'	49°51.6'	60°16.3'	61°22.1'
11	14°52.7'	N 22°03.3'	9.7'	-7.8'	56.4'	20°21.5'	16°42.0'	24°49.3'	45°33.0'	49°48.3'	50°06.6'	60°48.4'	61°47.8'
12	29°21.4'	N 21°55.5'	9.7'	-7.9'	56.4'	19°50.1'	17°13.7'	25°08.5'	46°02.1'	50°16.7'	50°21.9'	61°20.4'	62°13.7'
13	43°50.1'	N 21°47.6'	9.7'	-8.1'	56.4'	19°18.7'	17°45.6'	25°28.1'	46°31.3'	50°45.1'	50°37.4'	61°52.5'	62°39.6'
14	58°18.8'	N 21°39.5'	9.8'	-8.2'	56.5'	18°47.3'	18°17.5'	25°48.1'	47°00.7'	51°13.7'	50°53.1'	62°24.6'	63°05.6'
15	72°47.6'	N 21°31.3'	9.8'	-8.3'	56.5'	18°16.0'	18°49.4'	26°08.6'	47°30.1'	51°42.4'	51°09.0'	62°56.8'	63°31.7'
16	87°16.4'	N 21°23.0'	9.8'	-8.4'	56.5'	17°44.6'	19°21.4'	26°29.4'	47°59.5'	52°11.1'	51°25.1'	63°29.0'	63°57.8'
17	101°45.2'	N 21°14.6'	9.8'	-8.5'	56.5'	17°13.3'	19°53.5'	26°50.6'	48°29.1'	52°39.9'	51°41.4'	64°01.3'	64°24.1'
18	116°14.1'	N 21°06.1'	9.9'	-8.7'	56.6'	16°42.0'	20°25.6'	27°12.2'	48°58.7'	53°08.8'	51°58.0'	64°33.6'	64°50.4'
19	130°42.9'	N 20°57.4'	9.9'	-8.8'	56.6'	16°10.8'	20°57.8'	27°34.1'	49°28.4'	53°37.8'	52°14.7'	65°05.9'	65°16.8'
20	145°11.9'	N 20°48.6'	9.9'	-8.9'	56.6'	15°39.6'	21°30.0'	27°56.4'	49°58.2'	54°06.9'	52°31.6'	65°38.2'	65°43.3'
21	159°40.8'	N 20°39.7'	10.0'	-9.0'	56.7'	15°08.5'	22°02.3'	28°19.0'	50°28.1'	54°36.0'	52°48.6'	66°10.6'	66°09.8'
22	174°09.8'	N 20°30.7'	10.0'	-9.1'	56.7'	14°37.4'	22°34.6'	28°41.9'	50°58.0'	55°05.2'	53°05.9'	66°43.1'	66°36.4'
23	188°38.7'	N 20°21.6'	10.0'	-9.3'	56.7'	14°06.5'	23°07.0'	29°05.2'	51°28.0'	55°34.5'	53°23.4'	67°15.5'	67°03.1'
Mer. pass.		9 h 58 m SD 15.3'		phase 10%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°05.8'	N 89°21.0'
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.2'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	344°19.2'		180°18.3'	N 6°48.5'	142°59.6'	S 9°25.2'	16°26.0'	S 14°15.1'	33°46.5'	S 19°04.4'	169°53.2'	N 3°22.2'
1	359°21.7'		195°18.5'	N 6°47.6'	157°59.4'	S 9°26.5'	31°28.8'	S 14°15.2'	48°49.1'	S 19°04.5'	184°54.2'	N 3°21.6'
2	14°24.1'		210°18.7'	N 6°46.6'	172°59.2'	S 9°27.7'	46°31.5'	S 14°15.3'	63°51.7'	S 19°04.5'	199°55.2'	N 3°20.9'
3	29°26.6'		225°18.9'	N 6°45.7'	187°59.0'	S 9°28.9'	61°34.3'	S 14°15.4'	78°54.3'	S 19°04.5'	214°56.2'	N 3°20.3'
4	44°29.0'		240°19.2'	N 6°44.8'	202°58.8'	S 9°30.1'	76°37.0'	S 14°15.5'	93°56.9'	S 19°04.6'	229°57.2'	N 3°19.6'
5	59°31.5'		255°19.4'	N 6°43.9'	217°58.6'	S 9°31.4'	91°39.8'	S 14°15.6'	108°59.5'	S 19°04.6'	244°58.2'	N 3°19.0'
6	74°34.0'		270°19.6'	N 6°42.9'	232°58.4'	S 9°32.6'	106°42.6'	S 14°15.7'	124°02.1'	S 19°04.6'	259°59.2'	N 3°18.3'
7	89°36.4'		285°19.8'	N 6°42.0'	247°58.2'	S 9°33.8'	121°45.3'	S 14°15.8'	139°04.7'	S 19°04.7'	275°00.2'	N 3°17.7'
8	104°38.9'		300°20.0'	N 6°41.1'	262°58.0'	S 9°35.0'	136°48.1'	S 14°15.9'	154°07.3'	S 19°04.7'	290°01.2'	N 3°17.0'
9	119°41.4'		315°20.2'	N 6°40.2'	277°57.8'	S 9°36.3'	151°50.8'	S 14°16.0'	169°09.9'	S 19°04.8'	305°02.2'	N 3°16.4'
10	134°43.8'		330°20.4'	N 6°39.2'	292°57.6'	S 9°37.5'	166°53.6'	S 14°16.1'	184°12.5'	S 19°04.8'	320°03.2'	N 3°15.7'
11	149°46.3'		345°20.6'	N 6°38.3'	307°57.4'	S 9°38.7'	181°56.3'	S 14°16.2'	199°15.1'	S 19°04.8'	335°04.2'	N 3°15.1'
12	164°48.8'		0°20.8'	N 6°37.4'	322°57.1'	S 9°39.9'	196°59.1'	S 14°16.3'	214°17.7'	S 19°04.9'	350°05.2'	N 3°14.4'
13	179°51.2'		15°21.0'	N 6°36.4'	337°56.9'	S 9°41.2'	212°01.8'	S 14°16.4'	229°20.3'	S 19°04.9'	5°06.2'	N 3°13.8'
14	194°53.7'		30°21.2'	N 6°35.5'	352°56.7'	S 9°42.4'	227°04.6'	S 14°16.5'	244°22.9'	S 19°04.9'	20°07.2'	N 3°13.1'
15	209°56.2'		45°21.5'	N 6°34.6'	7°56.5'	S 9°43.6'	242°07.3'	S 14°16.6'	259°25.5'	S 19°05.0'	35°08.2'	N 3°12.5'
16	224°58.6'		60°21.7'	N 6°33.6'	22°56.3'	S 9°44.8'	257°10.1'	S 14°16.7'	274°28.1'	S 19°05.0'	50°09.2'	N 3°11.8'
17	240°01.1'		75°21.9'	N 6°32.7'	37°56.1'	S 9°46.0'	272°12.8'	S 14°16.8'	289°30.7'	S 19°05.0'	65°10.1'	N 3°11.2'
18	255°03.5'		90°22.1'	N 6°31.8'	52°55.9'	S 9°47.3'	287°15.6'	S 14°16.9'	304°33.3'	S 19°05.1'	80°11.1'	N 3°10.5'
19	270°06.0'		105°22.3'	N 6°30.9'	67°55.7'	S 9°48.5'	302°18.3'	S 14°17.0'	319°35.9'	S 19°05.1'	95°12.1'	N 3°09.9'
20	285°08.5'		120°22.5'	N 6°29.9'	82°55.5'	S 9°49.7'	317°21.1'	S 14°17.1'	334°38.5'	S 19°05.1'	110°13.1'	N 3°09.2'
21	300°10.9'		135°22.7'	N 6°29.0'	97°55.3'	S 9°50.9'	332°23.8'	S 14°17.2'	349°41.1'	S 19°05.2'	125°14.1'	N 3°08.6'
22	315°13.4'		150°22.9'	N 6°28.1'	112°55.1'	S 9°52.1'	347°26.6'	S 14°17.3'	4°43.7'	S 19°05.2'	140°15.1'	N 3°07.9'
23	330°15.9'		165°23.1'	N 6°27.1'	127°54.8'	S 9°53.4'	2°29.3'	S 14°17.4'	19°46.3'	S 19°05.3'	155°16.1'	N 3°07.3'
			SD 15.9'	<i>d</i> -0.9'	<i>v</i> -0.2'	<i>d</i> -1.2'	<i>v</i> 2.8'	<i>d</i> -0.1'	<i>v</i> 2.6'	<i>d</i> -0.0'	<i>v</i> 1.0'	<i>d</i> -0.7'
Mer. pass.			11 h 58 m 38 s		14 h 28 m		22 h 50 m		21 h 41 m		12 h 40 m	

h	Moon					Lunar distance							
	GHA	dec	<i>v</i>	<i>d</i>	HP	-Regulus	+Pollux	+Procyon	+Betelgeuse	+Sirius	+Capella	+Rigel	+Aldebaran
0	203°07.8'	N 20°12.3'	10.1'	-9.4'	56.7'	13°35.6'	23°39.4'	29°28.7'	51°58.1'	53°41.0'	56°03.9'	67°29.9'	67°48.0'
1	217°36.8'	N 20°03.0'	10.1'	-9.5'	56.8'	13°04.8'	24°11.9'	29°52.5'	52°28.2'	53°58.8'	56°33.3'	67°56.8'	68°20.6'
2	232°05.9'	N 19°53.5'	10.1'	-9.6'	56.8'	12°34.2'	24°44.4'	30°16.6'	52°58.4'	54°16.8'	57°02.8'	68°23.7'	68°53.1'
3	246°35.0'	N 19°43.9'	10.1'	-9.7'	56.8'	12°03.7'	25°17.0'	30°41.0'	53°28.7'	54°35.0'	57°32.4'	68°50.7'	69°25.8'
4	261°04.2'	N 19°34.2'	10.2'	-9.8'	56.9'	11°33.4'	25°49.6'	31°05.6'	53°59.1'	54°53.4'	58°02.0'	69°17.7'	69°58.4'
5	275°33.4'	N 19°24.3'	10.2'	-9.9'	56.9'	11°03.3'	26°22.2'	31°30.5'	54°29.5'	55°11.9'	58°31.8'	69°44.8'	70°31.1'
6	290°02.6'	N 19°14.4'	10.2'	-10.0'	56.9'	10°33.5'	26°54.9'	31°55.6'	54°60.0'	55°30.6'	59°01.5'	70°12.0'	71°03.8'
7	304°31.8'	N 19°04.4'	10.3'	-10.2'	56.9'	10°03.9'	27°27.7'	32°20.9'	55°30.5'	55°49.4'	59°31.4'	70°39.3'	71°36.6'
8	319°01.1'	N 18°54.2'	10.3'	-10.3'	57.0'	9°34.7'	28°00.4'	32°46.5'	56°01.1'	56°08.4'	60°01.3'	71°06.6'	72°09.4'
9	333°30.4'	N 18°43.9'	10.3'	-10.4'	57.0'	9°05.8'	28°33.3'	33°12.3'	56°31.8'	56°27.6'	60°31.3'	71°34.0'	72°42.2'
10	347°59.7'	N 18°33.6'	10.4'	-10.5'	57.0'	8°37.4'	29°06.1'	33°38.3'	57°02.5'	56°47.0'	61°01.3'	72°01.4'	73°15.1'
11	2°29.1'	N 18°23.1'	10.4'	-10.6'	57.1'	8°09.6'	29°39.0'	34°04.6'	57°33.3'	57°06.5'	61°31.4'	72°28.9'	73°48.0'
12	16°58.5'	N 18°12.5'	10.4'	-10.7'	57.1'	7°42.4'	30°12.0'	34°31.0'	58°04.1'	57°26.1'	62°01.6'	72°56.5'	74°20.9'
13	31°28.0'	N 18°01.8'	10.5'	-10.8'	57.1'		30°45.0'	34°57.6'	58°35.0'	57°45.9'	62°31.8'	73°24.1'	74°53.9'
14	45°57.4'	N 17°51.0'	10.5'	-10.9'	57.1'		31°18.0'	35°24.4'	59°06.0'	58°05.9'	63°02.1'	73°51.7'	75°26.9'
15	60°26.9'	N 17°40.1'	10.5'	-11.0'	57.2'		31°51.1'	35°51.4'	59°37.0'	58°26.0'	63°32.4'	74°19.5'	75°59.9'
16	74°56.5'	N 17°29.1'	10.6'	-11.1'	57.2'		32°24.2'	36°18.6'	60°08.1'	58°46.2'	64°02.8'	74°47.3'	76°33.0'
17	89°26.0'	N 17°18.0'	10.6'	-11.2'	57.2'		32°57.3'	36°45.9'	60°39.2'	59°06.6'	64°33.3'	75°15.1'	77°06.1'
18	103°55.6'	N 17°06.8'	10.6'	-11.3'	57.3'		33°30.5'	37°13.4'	61°10.4'	59°27.1'	65°03.8'	75°43.0'	77°39.3'
19	118°25.3'	N 16°55.5'	10.7'	-11.4'	57.3'		34°03.7'	37°41.1'	61°41.7'	59°47.8'	65°34.4'	76°11.0'	78°12.5'
20	132°54.9'	N 16°44.1'	10.7'	-11.5'	57.3'		34°37.0'	38°08.9'	62°13.0'	60°08.6'	66°05.0'	76°39.0'	78°45.7'
21	147°24.6'	N 16°32.6'	10.7'	-11.6'	57.3'		35°10.3'	38°36.9'	62°44.3'	60°29.5'	66°35.7'	77°07.0'	79°19.0'
22	161°54.4'	N 16°21.0'	10.8'	-11.7'	57.4'		35°43.6'	39°05.1'	63°15.7'	60°50.6'	67°06.4'	77°35.1'	79°52.2'
23	176°24.1'	N 16°09.3'	10.8'	-11.8'	57.4'		36°17.0'	39°33.3'	63°47.2'	61°11.8'	67°37.2'	78°03.3'	80°25.6'
Mer. pass.			10 h 50 m SD 15.5'		phase 5%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°05.3'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.2'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	345°18.3'	180°23.3' N 6°26.2'	142°54.6'	S 9°54.6'	17°32.1'	S 14°17.5'	34°48.9'	S 19°05.3'	170°17.1'	N 3°06.6'		
1	0°20.8'	195°23.6' N 6°25.3'	157°54.4'	S 9°55.8'	32°34.8'	S 14°17.6'	49°51.5'	S 19°05.3'	185°18.1'	N 3°06.0'		
2	15°23.3'	210°23.8' N 6°24.3'	172°54.2'	S 9°57.0'	47°37.6'	S 14°17.7'	64°54.1'	S 19°05.4'	200°19.1'	N 3°05.3'		
3	30°25.7'	225°24.0' N 6°23.4'	187°54.0'	S 9°58.2'	62°40.3'	S 14°17.8'	79°56.7'	S 19°05.4'	215°20.1'	N 3°04.7'		
4	45°28.2'	240°24.2' N 6°22.5'	202°53.8'	S 9°59.4'	77°43.1'	S 14°17.9'	94°59.3'	S 19°05.4'	230°21.1'	N 3°04.0'		
5	60°30.7'	255°24.4' N 6°21.5'	217°53.6'	S 10°00.7'	92°45.8'	S 14°18.0'	110°01.9'	S 19°05.5'	245°22.1'	N 3°03.4'		
6	75°33.1'	270°24.6' N 6°20.6'	232°53.4'	S 10°01.9'	107°48.6'	S 14°18.1'	125°04.5'	S 19°05.5'	260°23.1'	N 3°02.7'		
7	90°35.6'	285°24.8' N 6°19.7'	247°53.2'	S 10°03.1'	122°51.3'	S 14°18.2'	140°07.1'	S 19°05.5'	275°24.1'	N 3°02.1'		
8	105°38.0'	300°25.0' N 6°18.7'	262°52.9'	S 10°04.3'	137°54.1'	S 14°18.3'	155°09.7'	S 19°05.6'	290°25.1'	N 3°01.4'		
9	120°40.5'	315°25.2' N 6°17.8'	277°52.7'	S 10°05.5'	152°56.8'	S 14°18.4'	170°12.3'	S 19°05.6'	305°26.1'	N 3°00.8'		
10	135°43.0'	330°25.5' N 6°16.9'	292°52.5'	S 10°06.7'	167°59.6'	S 14°18.5'	185°14.9'	S 19°05.6'	320°27.1'	N 3°00.1'		
11	150°45.4'	345°25.7' N 6°15.9'	307°52.3'	S 10°08.0'	183°02.3'	S 14°18.6'	200°17.5'	S 19°05.7'	335°28.1'	N 2°59.5'		
12	165°47.9'	0°25.9' N 6°15.0'	322°52.1'	S 10°09.2'	198°05.1'	S 14°18.7'	215°20.1'	S 19°05.7'	350°29.0'	N 2°58.8'		
13	180°50.4'	15°26.1' N 6°14.1'	337°51.9'	S 10°10.4'	213°07.8'	S 14°18.8'	230°22.7'	S 19°05.7'	5°30.0' N 2°58.2'			
14	195°52.8'	30°26.3' N 6°13.1'	352°51.7'	S 10°11.6'	228°10.6'	S 14°18.9'	245°25.3'	S 19°05.8'	20°31.0' N 2°57.5'			
15	210°55.3'	45°26.5' N 6°12.2'	7°51.5' S 10°12.8'	243°13.3'	S 14°19.0'	260°27.9'	S 19°05.8'	35°32.0' N 2°56.9'				
16	225°57.8'	60°26.7' N 6°11.3'	22°51.2' S 10°14.0'	258°16.0'	S 14°19.1'	275°30.5'	S 19°05.9'	50°33.0' N 2°56.2'				
17	241°00.2'	75°26.9' N 6°10.3'	37°51.0' S 10°15.2'	273°18.8'	S 14°19.2'	290°33.1'	S 19°05.9'	65°34.0' N 2°55.5'				
18	256°02.7'	90°27.1' N 6°09.4'	52°50.8' S 10°16.5'	288°21.5'	S 14°19.3'	305°35.7'	S 19°05.9'	80°35.0' N 2°54.9'				
19	271°05.1'	105°27.4' N 6°08.5'	67°50.6' S 10°17.7'	303°24.3'	S 14°19.4'	320°38.3'	S 19°06.0'	95°36.0' N 2°54.2'				
20	286°07.6'	120°27.6' N 6°07.5'	82°50.4' S 10°18.9'	318°27.0'	S 14°19.5'	335°40.9'	S 19°06.0'	110°37.0' N 2°53.6'				
21	301°10.1'	135°27.8' N 6°06.6'	97°50.2' S 10°20.1'	333°29.8'	S 14°19.6'	350°43.4'	S 19°06.0'	125°38.0' N 2°52.9'				
22	316°12.5'	150°28.0' N 6°05.7'	112°50.0' S 10°21.3'	348°32.5'	S 14°19.7'	5°46.0' S 19°06.1'		140°39.0' N 2°52.3'				
23	331°15.0'	165°28.2' N 6°04.7'	127°49.7' S 10°22.5'	3°35.3' S 14°19.8'		20°48.6' S 19°06.1'		155°40.0' N 2°51.6'				
		SD 15.9' d -0.9'	v -0.2' d -1.2'	v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d -0.7'				
Mer. pass.		11 h 58 m 18 s	14 h 29 m	22 h 46 m		21 h 37 m		12 h 38 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Pollux	+Procyon	+Sirius	+Betelgeuse	+Adhara	+Capella	+Rigel	+Aldebaran
0	190°53.9'	N 15°57.5'	10.8'	-11.9'	57.4'	36°50.4'	40°01.7'	61°33.2'	64°18.7'	65°53.6'	68°08.0'	78°31.5'	80°58.9'
1	205°23.7'	N 15°45.6'	10.9'	-12.0'	57.5'	37°23.9'	40°30.3'	61°54.6'	64°50.2'	66°08.7'	68°38.9'	78°59.7'	81°32.3'
2	219°53.6'	N 15°33.6'	10.9'	-12.1'	57.5'	37°57.4'	40°59.0'	62°16.2'	65°21.8'	66°08.7'	69°09.9'	79°28.0'	82°05.8'
3	234°23.5'	N 15°21.5'	10.9'	-12.2'	57.5'	38°30.9'	41°27.8'	62°37.9'	65°53.5'	66°23.8'	69°40.9'	79°56.4'	82°39.2'
4	248°53.4'	N 15°09.3'	10.9'	-12.3'	57.5'	39°04.4'	41°56.8'	62°59.7'	66°25.2'	66°39.2'	70°11.9'	80°24.8'	83°12.7'
5	263°23.4'	N 14°57.1'	11.0'	-12.3'	57.6'	39°38.0'	42°25.8'	63°21.7'	66°56.9'	66°54.6'	70°43.0'	80°53.2'	83°46.2'
6	277°53.3'	N 14°44.7'	11.0'	-12.4'	57.6'	40°11.7'	42°55.0'	63°43.7'	67°28.7'	67°10.1'	71°14.2'	81°21.7'	84°19.8'
7	292°23.3'	N 14°32.3'	11.0'	-12.5'	57.6'	40°45.3'	43°24.3'	64°05.9'	68°00.6'	67°25.8'	71°45.3'	81°50.2'	84°53.4'
8	306°53.4'	N 14°19.8'	11.1'	-12.6'	57.7'	41°19.0'	43°53.8'	64°28.2'	68°32.4'	67°41.6'	72°16.6'	82°18.8'	85°27.0'
9	321°23.5'	N 14°07.2'	11.1'	-12.7'	57.7'								
10	335°53.6'	N 13°54.5'	11.1'	-12.8'	57.7'								
11	350°23.7'	N 13°41.7'	11.2'	-12.9'	57.7'								
12	4°53.8'	N 13°28.8'	11.2'	-12.9'	57.8'								
13	19°24.0'	N 13°15.9'	11.2'	-13.0'	57.8'								
14	33°54.2'	N 13°02.9'	11.2'	-13.1'	57.8'								
15	48°24.5'	N 12°49.8'	11.3'	-13.2'	57.8'								
16	62°54.7'	N 12°36.6'	11.3'	-13.3'	57.9'								
17	77°25.0'	N 12°23.4'	11.3'	-13.3'	57.9'								
18	91°55.3'	N 12°10.0'	11.3'	-13.4'	57.9'								
19	106°25.7'	N 11°56.6'	11.4'	-13.5'	57.9'								
20	120°56.0'	N 11°43.1'	11.4'	-13.5'	58.0'								
21	135°26.4'	N 11°29.6'	11.4'	-13.6'	58.0'								
22	149°56.8'	N 11°16.0'	11.4'	-13.7'	58.0'								
23	164°27.3'	N 11°02.3'	11.5'	-13.8'	58.0'								
Mer. pass.		11 h 40 m SD 15.7'	phase 1%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.2'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°04.9'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.9'	S 57°07.4'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	346°17.5'	180°28.4' N 6°03.8'	142°49.5' S 10°23.7'	18°38.0' S 14°19.9'	35°51.2' S 19°06.1'	170°41.0' N 2°51.0'						
1	1°19.9'	195°28.6' N 6°02.9'	157°49.3' S 10°24.9'	33°40.8' S 14°20.0'	50°53.8' S 19°06.2'	185°42.0' N 2°50.3'						
2	16°22.4'	210°28.8' N 6°01.9'	172°49.1' S 10°26.1'	48°43.5' S 14°20.1'	65°56.4' S 19°06.2'	200°43.0' N 2°49.7'						
3	31°24.9'	225°29.1' N 6°01.0'	187°48.9' S 10°27.3'	63°46.3' S 14°20.2'	80°59.0' S 19°06.2'	215°44.0' N 2°49.0'						
4	46°27.3'	240°29.3' N 6°00.0'	202°48.7' S 10°28.6'	78°49.0' S 14°20.3'	96°01.6' S 19°06.3'	230°45.0' N 2°48.4'						
5	61°29.8'	255°29.5' N 5°59.1'	217°48.5' S 10°29.8'	93°51.7' S 14°20.4'	111°04.2' S 19°06.3'	245°45.9' N 2°47.7'						
6	76°32.3'	270°29.7' N 5°58.2'	232°48.2' S 10°31.0'	108°54.5' S 14°20.5'	126°06.8' S 19°06.3'	260°46.9' N 2°47.1'						
7	91°34.7'	285°29.9' N 5°57.2'	247°48.0' S 10°32.2'	123°57.2' S 14°20.6'	141°09.4' S 19°06.4'	275°47.9' N 2°46.4'						
8	106°37.2'	300°30.1' N 5°56.3'	262°47.8' S 10°33.4'	138°60.0' S 14°20.7'	156°12.0' S 19°06.4'	290°48.9' N 2°45.8'						
9	121°39.6'	315°30.3' N 5°55.4'	277°47.6' S 10°34.6'	154°02.7' S 14°20.8'	171°14.6' S 19°06.4'	305°49.9' N 2°45.1'						
10	136°42.1'	330°30.5' N 5°54.4'	292°47.4' S 10°35.8'	169°05.5' S 14°20.9'	186°17.2' S 19°06.5'	320°50.9' N 2°44.5'						
11	151°44.6'	345°30.8' N 5°53.5'	307°47.2' S 10°37.0'	184°08.2' S 14°21.0'	201°19.8' S 19°06.5'	335°51.9' N 2°43.8'						
12	166°47.0'	0°31.0' N 5°52.6'	322°46.9' S 10°38.2'	199°11.0' S 14°21.0'	216°22.4' S 19°06.5'	350°52.9' N 2°43.2'						
13	181°49.5'	15°31.2' N 5°51.6'	337°46.7' S 10°39.4'	214°13.7' S 14°21.1'	231°25.0' S 19°06.6'	5°53.9' N 2°42.5'						
14	196°52.0'	30°31.4' N 5°50.7'	352°46.5' S 10°40.6'	229°16.4' S 14°21.2'	246°27.6' S 19°06.6'	20°54.9' N 2°41.9'						
15	211°54.4'	45°31.6' N 5°49.7'	7°46.3' S 10°41.8'	244°19.2' S 14°21.3'	261°30.2' S 19°06.6'	35°55.9' N 2°41.2'						
16	226°56.9'	60°31.8' N 5°48.8'	22°46.1' S 10°43.0'	259°21.9' S 14°21.4'	276°32.7' S 19°06.7'	50°56.9' N 2°40.5'						
17	241°59.4'	75°32.0' N 5°47.9'	37°45.8' S 10°44.2'	274°24.7' S 14°21.5'	291°35.3' S 19°06.7'	65°57.9' N 2°39.9'						
18	257°01.8'	90°32.3' N 5°46.9'	52°45.6' S 10°45.4'	289°27.4' S 14°21.6'	306°37.9' S 19°06.7'	80°58.9' N 2°39.2'						
19	272°04.3'	105°32.5' N 5°46.0'	67°45.4' S 10°46.6'	304°30.2' S 14°21.7'	321°40.5' S 19°06.8'	95°59.9' N 2°38.6'						
20	287°06.7'	120°32.7' N 5°45.0'	82°45.2' S 10°47.8'	319°32.9' S 14°21.8'	336°43.1' S 19°06.8'	111°00.9' N 2°37.9'						
21	302°09.2'	135°32.9' N 5°44.1'	97°45.0' S 10°49.1'	334°35.7' S 14°21.9'	351°45.7' S 19°06.8'	126°01.9' N 2°37.3'						
22	317°11.7'	150°33.1' N 5°43.2'	112°44.8' S 10°50.3'	349°38.4' S 14°22.0'	6°48.3' S 19°06.9'	141°02.8' N 2°36.6'						
23	332°14.1'	165°33.3' N 5°42.2'	127°44.5' S 10°51.5'	4°41.1' S 14°22.1'	21°50.9' S 19°06.9'	156°03.8' N 2°36.0'						
		SD 15.9' d -0.9'	v -0.2' d -1.2'	v 2.7' d -0.1'	v 2.6' d -0.0'	v 1.0' d -0.7'						
Mer. pass.		11 h 57 m 57 s	14 h 29 m	22 h 41 m	21 h 33 m	12 h 36 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Altair	-Antares	-Rigel Kent	-Hadar	-Acrux	-Arcturus	-Venus	-Spica
0	178°57.7'	N 10°48.5'	11.5'	-13.8'	58.1'								
1	193°28.2'	N 10°34.7'	11.5'	-13.9'	58.1'								
2	207°58.7'	N 10°20.8'	11.5'	-14.0'	58.1'								
3	222°29.2'	N 10°06.9'	11.5'	-14.0'	58.1'								
4	236°59.7'	N 9°52.8'	11.6'	-14.1'	58.2'								
5	251°30.3'	N 9°38.7'	11.6'	-14.1'	58.2'								
6	266°00.9'	N 9°24.6'	11.6'	-14.2'	58.2'								
7	280°31.5'	N 9°10.4'	11.6'	-14.3'	58.2'								
8	295°02.1'	N 8°56.1'	11.6'	-14.3'	58.3'								
9	309°32.7'	N 8°41.8'	11.6'	-14.4'	58.3'								
10	324°03.3'	N 8°27.5'	11.7'	-14.4'	58.3'								
11	338°34.0'	N 8°13.0'	11.7'	-14.5'	58.3'								
12	353°04.7'	N 7°58.5'	11.7'	-14.5'	58.4'								
13	7°35.4'	N 7°44.0'	11.7'	-14.6'	58.4'								
14	22°06.1'	N 7°29.4'	11.7'	-14.6'	58.4'								
15	36°36.8'	N 7°14.8'	11.7'	-14.7'	58.4'								
16	51°07.5'	N 7°00.1'	11.7'	-14.7'	58.4'								
17	65°38.2'	N 6°45.4'	11.7'	-14.8'	58.5'								
18	80°09.0'	N 6°30.6'	11.7'	-14.8'	58.5'	119°16.8'	75°59.9'	75°24.9'	72°14.3'	70°08.9'	38°20.9'	32°16.4'	30°19.9'
19	94°39.7'	N 6°15.8'	11.8'	-14.9'	58.5'	118°49.8'	75°25.2'	75°00.1'	71°50.9'	69°51.5'	37°57.7'	31°44.7'	29°45.7'
20	109°10.5'	N 6°00.9'	11.8'	-14.9'	58.5'	118°22.7'	74°50.5'	74°35.4'	71°27.6'	69°34.3'	37°34.6'	31°13.0'	29°11.5'
21	123°41.2'	N 5°46.0'	11.8'	-14.9'	58.6'	117°55.5'	74°15.7'	74°10.7'	71°04.4'	69°17.1'	37°11.9'	30°41.3'	28°37.2'
22	138°12.0'	N 5°31.1'	11.8'	-15.0'	58.6'	117°28.2'	73°40.9'	73°46.1'	70°41.1'	69°00.0'	36°49.4'	30°09.5'	28°03.0'
23	152°42.8'	N 5°16.1'	11.8'	-15.0'	58.6'	117°00.8'	73°06.0'	73°21.5'	70°18.0'	68°43.1'	36°27.1'	29°37.8'	27°28.8'
Mer. pass.		12 h 29 m SD 15.8'	phase 0%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'		
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'		
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'		
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'		
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°04.5'	N 89°21.0'		
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.4'		
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'						
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'						

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	347°16.6'	180°33.5' N 5°41.3'	142°44.3' S 10°52.7'	19°43.9' S 14°22.2'	36°53.5' S 19°06.9'	171°04.8' N 2°35.3'						
1	2°19.1'	195°33.8' N 5°40.3'	157°44.1' S 10°53.9'	34°46.6' S 14°22.3'	51°56.1' S 19°07.0'	186°05.8' N 2°34.7'						
2	17°21.5'	210°34.0' N 5°39.4'	172°43.9' S 10°55.1'	49°49.4' S 14°22.4'	66°58.7' S 19°07.0'	201°06.8' N 2°34.0'						
3	32°24.0'	225°34.2' N 5°38.5'	187°43.7' S 10°56.3'	64°52.1' S 14°22.5'	82°01.3' S 19°07.0'	216°07.8' N 2°33.4'						
4	47°26.5'	240°34.4' N 5°37.5'	202°43.4' S 10°57.5'	79°54.8' S 14°22.6'	97°03.9' S 19°07.1'	231°08.8' N 2°32.7'						
5	62°28.9'	255°34.6' N 5°36.6'	217°43.2' S 10°58.7'	94°57.6' S 14°22.7'	112°06.5' S 19°07.1'	246°09.8' N 2°32.1'						
6	77°31.4'	270°34.8' N 5°35.6'	232°43.0' S 10°59.9'	110°00.3' S 14°22.8'	127°09.0' S 19°07.1'	261°10.8' N 2°31.4'						
7	92°33.9'	285°35.0' N 5°34.7'	247°42.8' S 11°01.1'	125°03.1' S 14°22.9'	142°11.6' S 19°07.2'	276°11.8' N 2°30.8'						
8	107°36.3'	300°35.3' N 5°33.8'	262°42.6' S 11°02.3'	140°05.8' S 14°23.0'	157°14.2' S 19°07.2'	291°12.8' N 2°30.1'						
9	122°38.8'	315°35.5' N 5°32.8'	277°42.3' S 11°03.5'	155°08.5' S 14°23.1'	172°16.8' S 19°07.2'	306°13.8' N 2°29.4'						
10	137°41.2'	330°35.7' N 5°31.9'	292°42.1' S 11°04.7'	170°11.3' S 14°23.2'	187°19.4' S 19°07.3'	321°14.8' N 2°28.8'						
11	152°43.7'	345°35.9' N 5°30.9'	307°41.9' S 11°05.8'	185°14.0' S 14°23.3'	202°22.0' S 19°07.3'	336°15.8' N 2°28.1'						
12	167°46.2'	0°36.1' N 5°30.0'	322°41.7' S 11°07.0'	200°16.8' S 14°23.4'	217°24.6' S 19°07.3'	351°16.8' N 2°27.5'						
13	182°48.6'	15°36.3' N 5°29.1'	337°41.4' S 11°08.2'	215°19.5' S 14°23.4'	232°27.2' S 19°07.4'	6°17.8' N 2°26.8'						
14	197°51.1'	30°36.5' N 5°28.1'	352°41.2' S 11°09.4'	230°22.2' S 14°23.5'	247°29.8' S 19°07.4'	21°18.7' N 2°26.2'						
15	212°53.6'	45°36.8' N 5°27.2'	7°41.0' S 11°10.6'	245°25.0' S 14°23.6'	262°32.4' S 19°07.4'	36°19.7' N 2°25.5'						
16	227°56.0'	60°37.0' N 5°26.2'	22°40.8' S 11°11.8'	260°27.7' S 14°23.7'	277°35.0' S 19°07.5'	51°20.7' N 2°24.9'						
17	242°58.5'	75°37.2' N 5°25.3'	37°40.6' S 11°13.0'	275°30.5' S 14°23.8'	292°37.5' S 19°07.5'	66°21.7' N 2°24.2'						
18	258°01.0'	90°37.4' N 5°24.3'	52°40.3' S 11°14.2'	290°33.2' S 14°23.9'	307°40.1' S 19°07.5'	81°22.7' N 2°23.6'						
19	273°03.4'	105°37.6' N 5°23.4'	67°40.1' S 11°15.4'	305°35.9' S 14°24.0'	322°42.7' S 19°07.6'	96°23.7' N 2°22.9'						
20	288°05.9'	120°37.8' N 5°22.5'	82°39.9' S 11°16.6'	320°38.7' S 14°24.1'	337°45.3' S 19°07.6'	111°24.7' N 2°22.3'						
21	303°08.3'	135°38.1' N 5°21.5'	97°39.7' S 11°17.8'	335°41.4' S 14°24.2'	352°47.9' S 19°07.6'	126°25.7' N 2°21.6'						
22	318°10.8'	150°38.3' N 5°20.6'	112°39.4' S 11°19.0'	350°44.2' S 14°24.3'	7°50.5' S 19°07.7'	141°26.7' N 2°20.9'						
23	333°13.3'	165°38.5' N 5°19.6'	127°39.2' S 11°20.2'	5°46.9' S 14°24.4'	22°53.1' S 19°07.7'	156°27.7' N 2°20.3'						
		SD 15.9' d -0.9'	v -0.2' d -1.2'	v 2.7' d -0.1'	v 2.6' d -0.0'	v 1.0' d -0.7'						
Mer. pass.		11 h 57 m 37 s	14 h 29 m	22 h 37 m	21 h 29 m	12 h 35 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Saturn	-Altair	-Vega	-Rigel Kent	-Acrux	-Arcturus	-Venus	-Spica
0	167°13.5'	N 5°01.1'	11.8'	-15.1'	58.6'				72°56.9'	68°26.2'	36°05.1'	29°06.0'	26°54.6'
1	181°44.3'	N 4°46.0'	11.8'	-15.1'	58.6'				72°32.3'	68°09.4'	35°43.5'	28°34.2'	26°20.4'
2	196°15.1'	N 4°31.0'	11.8'	-15.1'	58.7'				72°07.8'	67°52.7'	35°22.1'	28°02.4'	25°46.2'
3	210°45.9'	N 4°15.8'	11.8'	-15.2'	58.7'				71°43.4'	67°36.1'	35°01.0'	27°30.6'	25°12.0'
4	225°16.7'	N 4°00.7'	11.8'	-15.2'	58.7'				71°19.0'	67°19.6'	34°40.2'	26°58.8'	24°37.8'
5	239°47.5'	N 3°45.5'	11.8'	-15.2'	58.7'				70°54.6'	67°03.2'	34°19.7'	26°27.0'	24°03.7'
6	254°18.3'	N 3°30.3'	11.8'	-15.2'	58.7'				70°30.3'	66°46.9'	33°59.6'	25°55.2'	23°29.5'
7	268°49.0'	N 3°15.1'	11.8'	-15.3'	58.8'				70°06.0'	66°30.8'	33°39.8'	25°23.3'	22°55.4'
8	283°19.8'	N 2°59.8'	11.8'	-15.3'	58.8'				69°41.8'	66°14.7'	33°20.4'	24°51.5'	22°21.3'
9	297°50.6'	N 2°44.5'	11.8'	-15.3'	58.8'				69°17.7'	65°58.8'	33°01.4'	24°19.6'	21°47.3'
10	312°21.4'	N 2°29.2'	11.8'	-15.3'	58.8'				68°53.6'	65°43.0'	32°42.7'	23°47.8'	21°13.3'
11	326°52.2'	N 2°13.9'	11.8'	-15.4'	58.8'				68°29.5'	65°27.3'	32°24.5'	23°15.9'	20°39.3'
12	341°22.9'	N 1°58.5'	11.8'	-15.4'	58.8'				68°05.5'	65°11.7'	32°06.6'	22°44.1'	20°05.4'
13	355°53.7'	N 1°43.1'	11.7'	-15.4'	58.9'				67°41.6'	64°56.2'	31°49.2'	22°12.2'	19°31.5'
14	10°24.4'	N 1°27.7'	11.7'	-15.4'	58.9'				67°17.8'	64°40.9'	31°32.2'	21°40.4'	18°57.7'
15	24°55.2'	N 1°12.3'	11.7'	-15.4'	58.9'				66°54.0'	64°25.7'	31°15.7'	21°08.5'	18°23.9'
16	39°25.9'	N 0°56.9'	11.7'	-15.4'	58.9'				66°30.3'		30°59.6'	20°36.7'	17°50.3'
17	53°56.6'	N 0°41.5'	11.7'	-15.4'	58.9'	119°40.2'			66°06.7'		30°44.0'	20°04.8'	17°16.7'
18	68°27.3'	N 0°26.0'	11.7'	-15.5'	58.9'	119°04.9'			65°43.1'			19°33.0'	16°43.2'
19	82°58.0'	N 0°10.6'	11.7'	-15.5'	59.0'	118°29.5'			65°19.7'			19°01.2'	16°09.9'
20	97°28.7'	S 0°04.9'	11.7'	-15.5'	59.0'	117°54.1'			64°56.3'			18°29.4'	15°36.6'
21	111°59.3'	S 0°20.3'	11.6'	-15.5'	59.0'	117°18.7'			64°33.0'			17°57.7'	15°03.5'
22	126°30.0'	S 0°35.8'	11.6'	-15.5'	59.0'	116°43.3'			64°09.7'			17°25.9'	14°30.6'
23	141°00.6'	S 0°51.3'	11.6'	-15.5'	59.0'	116°07.9'			63°46.6'			16°54.2'	13°57.8'
Mer. pass.													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°26.0'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°04.1'	N 89°21.0'
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				



h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	348°15.7'	180°38.7'	N 5°18.7'	142°39.0'	S 11°21.4'		20°49.6'	S 14°24.5'		37°55.7'	S 19°07.7'		171°28.7'	N 2°19.6'				
1	3°18.2'	195°38.9'	N 5°17.7'	157°38.8'	S 11°22.6'		35°52.4'	S 14°24.6'		52°58.3'	S 19°07.8'		186°29.7'	N 2°19.0'				
2	18°20.7'	210°39.1'	N 5°16.8'	172°38.5'	S 11°23.8'		50°55.1'	S 14°24.7'		68°00.9'	S 19°07.8'		201°30.7'	N 2°18.3'				
3	33°23.1'	225°39.4'	N 5°15.8'	187°38.3'	S 11°25.0'		65°57.8'	S 14°24.8'		83°03.4'	S 19°07.8'		216°31.7'	N 2°17.7'				
4	48°25.6'	240°39.6'	N 5°14.9'	202°38.1'	S 11°26.1'		81°00.6'	S 14°24.9'		98°06.0'	S 19°07.9'		231°32.6'	N 2°17.0'				
5	63°28.1'	255°39.8'	N 5°14.0'	217°37.9'	S 11°27.3'		96°03.3'	S 14°25.0'		113°08.6'	S 19°07.9'		246°33.6'	N 2°16.4'				
6	78°30.5'	270°40.0'	N 5°13.0'	232°37.6'	S 11°28.5'		111°06.1'	S 14°25.1'		128°11.2'	S 19°07.9'		261°34.6'	N 2°15.7'				
7	93°33.0'	285°40.2'	N 5°12.1'	247°37.4'	S 11°29.7'		126°08.8'	S 14°25.1'		143°13.8'	S 19°08.0'		276°35.6'	N 2°15.1'				
8	108°35.5'	300°40.4'	N 5°11.1'	262°37.2'	S 11°30.9'		141°11.5'	S 14°25.2'		158°16.4'	S 19°08.0'		291°36.6'	N 2°14.4'				
9	123°37.9'	315°40.7'	N 5°10.2'	277°37.0'	S 11°32.1'		156°14.3'	S 14°25.3'		173°19.0'	S 19°08.0'		306°37.6'	N 2°13.8'				
10	138°40.4'	330°40.9'	N 5°09.2'	292°36.7'	S 11°33.3'		171°17.0'	S 14°25.4'		188°21.6'	S 19°08.1'		321°38.6'	N 2°13.1'				
11	153°42.8'	345°41.1'	N 5°08.3'	307°36.5'	S 11°34.5'		186°19.7'	S 14°25.5'		203°24.1'	S 19°08.1'		336°39.6'	N 2°12.4'				
12	168°45.3'	0°41.3'	N 5°07.3'	322°36.3'	S 11°35.7'		201°22.5'	S 14°25.6'		218°26.7'	S 19°08.1'		351°40.6'	N 2°11.8'				
13	183°47.8'	15°41.5'	N 5°06.4'	337°36.1'	S 11°36.8'		216°25.2'	S 14°25.7'		233°29.3'	S 19°08.2'		6°41.6'	N 2°11.1'				
14	198°50.2'	30°41.7'	N 5°05.5'	352°35.8'	S 11°38.0'		231°27.9'	S 14°25.8'		248°31.9'	S 19°08.2'		21°42.6'	N 2°10.5'				
15	213°52.7'	45°42.0'	N 5°04.5'	7°35.6'	S 11°39.2'		246°30.7'	S 14°25.9'		263°34.5'	S 19°08.2'		36°43.6'	N 2°09.8'				
16	228°55.2'	60°42.2'	N 5°03.6'	22°35.4'	S 11°40.4'		261°33.4'	S 14°26.0'		278°37.1'	S 19°08.3'		51°44.6'	N 2°09.2'				
17	243°57.6'	75°42.4'	N 5°02.6'	37°35.1'	S 11°41.6'		276°36.2'	S 14°26.1'		293°39.7'	S 19°08.3'		66°45.6'	N 2°08.5'				
18	259°00.1'	90°42.6'	N 5°01.7'	52°34.9'	S 11°42.8'		291°38.9'	S 14°26.2'		308°42.3'	S 19°08.3'		81°46.6'	N 2°07.9'				
19	274°02.6'	105°42.8'	N 5°00.7'	67°34.7'	S 11°44.0'		306°41.6'	S 14°26.3'		323°44.8'	S 19°08.4'		96°47.5'	N 2°07.2'				
20	289°05.0'	120°43.0'	N 4°59.8'	82°34.5'	S 11°45.1'		321°44.4'	S 14°26.4'		338°47.4'	S 19°08.4'		111°48.5'	N 2°06.6'				
21	304°07.5'	135°43.3'	N 4°58.8'	97°34.2'	S 11°46.3'		336°47.1'	S 14°26.4'		353°50.0'	S 19°08.4'		126°49.5'	N 2°05.9'				
22	319°10.0'	150°43.5'	N 4°57.9'	112°34.0'	S 11°47.5'		351°49.8'	S 14°26.5'		8°52.6'	S 19°08.4'		141°50.5'	N 2°05.2'				
23	334°12.4'	165°43.7'	N 4°56.9'	127°33.8'	S 11°48.7'		6°52.6'	S 14°26.6'		23°55.2'	S 19°08.5'		156°51.5'	N 2°04.6'				
		SD 15.9'	d -0.9'		v -0.2' d -1.2'			v 2.7' d -0.1'			v 2.6' d -0.0'			v 1.0' d -0.7'				
Mer. pass.		11 h 57 m 16 s		14 h 30 m			22 h 33 m			21 h 25 m			12 h 33 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Achernar	-Saturn	-Altair	-Hadar	-Antares	-Venus	-Spica
0	155°31.2'	S 1°06.8'	11.6'	-15.5'	59.0'			115°32.4'	105°12.3'	61°03.7'	58°28.9'	16°22.5'	13°25.2'
1	170°01.8'	S 1°22.3'	11.6'	-15.5'	59.0'			114°57.0'	104°43.2'	60°42.8'	57°53.6'	15°50.9'	12°52.9'
2	184°32.4'	S 1°37.8'	11.5'	-15.5'	59.1'			114°21.5'	104°14.1'	60°22.0'	57°18.3'	15°19.3'	12°20.8'
3	199°02.9'	S 1°53.2'	11.5'	-15.5'	59.1'			113°46.0'	103°44.9'	60°01.4'	56°42.9'	14°47.8'	11°49.0'
4	213°33.4'	S 2°08.7'	11.5'	-15.5'	59.1'			113°10.5'	103°15.7'	59°40.9'	56°07.6'	14°16.3'	11°17.6'
5	228°03.9'	S 2°24.2'	11.5'	-15.5'	59.1'			112°35.0'	102°46.5'	59°20.5'	55°32.2'	13°44.9'	10°46.6'
6	242°34.4'	S 2°39.7'	11.5'	-15.5'	59.1'			111°59.4'	102°17.2'	59°00.3'	54°56.9'	13°13.5'	10°16.1'
7	257°04.9'	S 2°55.1'	11.4'	-15.5'	59.1'			111°23.9'	101°47.9'	58°40.2'	54°21.5'	12°42.3'	9°46.0'
8	271°35.3'	S 3°10.6'	11.4'	-15.4'	59.1'			110°48.3'	101°18.5'	58°20.2'	53°46.1'	12°11.2'	9°16.7'
9	286°05.7'	S 3°26.0'	11.4'	-15.4'	59.2'			110°12.7'	100°49.1'	58°00.4'	53°10.7'	11°40.2'	
10	300°36.1'	S 3°41.5'	11.3'	-15.4'	59.2'			109°37.1'	100°19.7'	57°40.8'	52°35.3'	11°09.3'	
11	315°06.4'	S 3°56.9'	11.3'	-15.4'	59.2'			109°01.5'	99°50.2'	57°21.3'	51°59.9'	10°38.6'	
12	329°36.7'	S 4°12.3'	11.3'	-15.4'	59.2'			108°25.9'	99°20.8'	57°02.0'	51°24.5'	10°08.1'	
13	344°07.0'	S 4°27.7'	11.3'	-15.4'	59.2'			107°50.3'	98°51.2'	56°42.8'	50°49.0'	9°37.8'	
14	358°37.3'	S 4°43.0'	11.2'	-15.3'	59.2'			107°14.7'	98°21.7'	56°23.8'	50°13.6'	9°07.8'	
15	13°07.5'	S 4°58.4'	11.2'	-15.3'	59.2'			106°39.0'	97°52.1'	56°05.0'	49°38.1'	8°38.1'	
16	27°37.7'	S 5°13.7'	11.1'	-15.3'	59.2'			106°03.4'	97°22.6'	55°46.3'	49°02.7'	8°08.7'	
17	42°07.8'	S 5°29.0'	11.1'	-15.3'	59.2'			105°27.7'	96°52.9'	55°27.8'	48°27.2'	7°39.8'	
18	56°37.9'	S 5°44.3'	11.1'	-15.3'	59.2'			104°52.0'	96°23.3'	55°09.5'	47°51.7'	7°11.5'	
19	71°08.0'	S 5°59.5'	11.0'	-15.2'	59.3'			104°16.3'	95°53.7'	54°51.4'	47°16.2'	6°43.8'	
20	85°38.0'	S 6°14.7'	11.0'	-15.2'	59.3'			103°40.6'	95°24.0'	54°33.5'	46°40.8'		
21	100°08.0'	S 6°29.9'	11.0'	-15.2'	59.3'			103°04.9'	94°54.3'	54°15.7'	46°05.3'		
22	114°38.0'	S 6°45.1'	10.9'	-15.1'	59.3'	119°27.0'		102°29.2'	94°24.6'	53°58.2'	45°29.8'		
23	129°07.9'	S 7°00.2'	10.9'	-15.1'	59.3'	118°51.2'	115°52.3'	101°53.5'	93°54.9'	53°40.9'	44°54.3'		
Mer. pass.		14 h 6 m SD 16.1'		phase 5%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°03.7'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.6'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars				
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec			
0	349°14.9'	180°43.9' N	4°56.0'	142°33.5'	S	11°49.9'	21°55.3'	S	14°26.7'	38°57.8'	S	19°08.5'	171°52.5'	N	2°03.9'
1	4°17.3'	195°44.1'	N 4°55.0'	157°33.3'	S	11°51.1'	36°58.0'	S	14°26.8'	54°00.4'	S	19°08.5'	186°53.5'	N	2°03.3'
2	19°19.8'	210°44.4'	N 4°54.1'	172°33.1'	S	11°52.2'	52°00.8'	S	14°26.9'	69°02.9'	S	19°08.6'	201°54.5'	N	2°02.6'
3	34°22.3'	225°44.6'	N 4°53.1'	187°32.9'	S	11°53.4'	67°03.5'	S	14°27.0'	84°05.5'	S	19°08.6'	216°55.5'	N	2°02.0'
4	49°24.7'	240°44.8'	N 4°52.2'	202°32.6'	S	11°54.6'	82°06.2'	S	14°27.1'	99°08.1'	S	19°08.6'	231°56.5'	N	2°01.3'
5	64°27.2'	255°45.0'	N 4°51.2'	217°32.4'	S	11°55.8'	97°09.0'	S	14°27.2'	114°10.7'	S	19°08.7'	246°57.5'	N	2°00.7'
6	79°29.7'	270°45.2'	N 4°50.3'	232°32.2'	S	11°57.0'	112°11.7'	S	14°27.3'	129°13.3'	S	19°08.7'	261°58.5'	N	2°00.0'
7	94°32.1'	285°45.4'	N 4°49.4'	247°31.9'	S	11°58.1'	127°14.4'	S	14°27.4'	144°15.9'	S	19°08.7'	276°59.5'	N	1°59.4'
8	109°34.6'	300°45.7'	N 4°48.4'	262°31.7'	S	11°59.3'	142°17.1'	S	14°27.5'	159°18.5'	S	19°08.8'	292°00.4'	N	1°58.7'
9	124°37.1'	315°45.9'	N 4°47.5'	277°31.5'	S	12°00.5'	157°19.9'	S	14°27.6'	174°21.0'	S	19°08.8'	307°01.4'	N	1°58.0'
10	139°39.5'	330°46.1'	N 4°46.5'	292°31.2'	S	12°01.7'	172°22.6'	S	14°27.6'	189°23.6'	S	19°08.8'	322°02.4'	N	1°57.4'
11	154°42.0'	345°46.3'	N 4°45.6'	307°31.0'	S	12°02.9'	187°25.3'	S	14°27.7'	204°26.2'	S	19°08.9'	337°03.4'	N	1°56.7'
12	169°44.4'	0°46.5'	N 4°44.6'	322°30.8'	S	12°04.0'	202°28.1'	S	14°27.8'	219°28.8'	S	19°08.9'	352°04.4'	N	1°56.1'
13	184°46.9'	15°46.8'	N 4°43.7'	337°30.5'	S	12°05.2'	217°30.8'	S	14°27.9'	234°31.4'	S	19°08.9'	7°05.4'	N	1°55.4'
14	199°49.4'	30°47.0'	N 4°42.7'	352°30.3'	S	12°06.4'	232°33.5'	S	14°28.0'	249°34.0'	S	19°09.0'	22°06.4'	N	1°54.8'
15	214°51.8'	45°47.2'	N 4°41.8'	7°30.1'	S	12°07.6'	247°36.3'	S	14°28.1'	264°36.6'	S	19°09.0'	37°07.4'	N	1°54.1'
16	229°54.3'	60°47.4'	N 4°40.8'	22°29.8'	S	12°08.7'	262°39.0'	S	14°28.2'	279°39.1'	S	19°09.0'	52°08.4'	N	1°53.5'
17	244°56.8'	75°47.6'	N 4°39.9'	37°29.6'	S	12°09.9'	277°41.7'	S	14°28.3'	294°41.7'	S	19°09.0'	67°09.4'	N	1°52.8'
18	259°59.2'	90°47.8'	N 4°38.9'	52°29.4'	S	12°11.1'	292°44.5'	S	14°28.4'	309°44.3'	S	19°09.1'	82°10.4'	N	1°52.1'
19	275°01.7'	105°48.1'	N 4°38.0'	67°29.1'	S	12°12.3'	307°47.2'	S	14°28.5'	324°46.9'	S	19°09.1'	97°11.4'	N	1°51.5'
20	290°04.2'	120°48.3'	N 4°37.0'	82°28.9'	S	12°13.4'	322°49.9'	S	14°28.6'	339°49.5'	S	19°09.1'	112°12.4'	N	1°50.8'
21	305°06.6'	135°48.5'	N 4°36.1'	97°28.7'	S	12°14.6'	337°52.6'	S	14°28.6'	354°52.1'	S	19°09.2'	127°13.3'	N	1°50.2'
22	320°09.1'	150°48.7'	N 4°35.1'	112°28.4'	S	12°15.8'	352°55.4'	S	14°28.7'	9°54.6'	S	19°09.2'	142°14.3'	N	1°49.5'
23	335°11.6'	165°48.9'	N 4°34.2'	127°28.2'	S	12°17.0'	7°58.1'	S	14°28.8'	24°57.2'	S	19°09.2'	157°15.3'	N	1°48.9'
		SD 15.9'	d -0.9'	v -0.2'	d -1.2'		v 2.7'	d -0.1'		v 2.6'	d -0.0'		v 1.0'	d -0.7'	
Mer. pass.		11 h 56 m 55 s		14 h 30 m			22 h 28 m			21 h 20 m			12 h 32 m		

h	Moon				Lunar distance										
	GHA	dec	v	d	HP	-Fomalhaut	-Rigel Kent	-Hadar	-Antares	-Venus	+Spica	+Arcturus	+Sun		
0	143°37.8'	S 7°15.3'	10.8'	-15.1'	59.3'			54°46.5'	53°23.7'	44°18.8'					
1	158°07.6'	S 7°30.4'	10.8'	-15.0'	59.3'			54°26.8'	53°06.8'	43°43.3'					
2	172°37.4'	S 7°45.4'	10.7'	-15.0'	59.3'			54°07.3'	52°50.1'	43°07.8'				40°04.6'	
3	187°07.1'	S 8°00.4'	10.7'	-14.9'	59.3'			53°48.0'	52°33.6'	42°32.2'				40°37.6'	
4	201°36.8'	S 8°15.3'	10.6'	-14.9'	59.3'			53°28.9'	52°17.3'	41°56.7'				41°10.6'	
5	216°06.5'	S 8°30.3'	10.6'	-14.9'	59.3'			53°10.0'	52°01.3'	41°21.2'				41°43.6'	
6	230°36.1'	S 8°45.1'	10.6'	-14.8'	59.3'			52°51.2'	51°45.5'	40°45.7'				42°16.6'	
7	245°05.6'	S 8°59.9'	10.5'	-14.8'	59.4'			52°32.7'	51°29.9'	40°10.2'				42°49.6'	
8	259°35.2'	S 9°14.7'	10.5'	-14.7'	59.4'			52°14.4'	51°14.6'	39°34.7'				43°22.6'	
9	274°04.6'	S 9°29.4'	10.4'	-14.7'	59.4'			51°56.2'		38°59.1'				43°55.7'	
10	288°34.0'	S 9°44.1'	10.4'	-14.6'	59.4'			51°38.3'		38°23.6'		9°28.9'		44°28.7'	
11	303°03.4'	S 9°58.7'	10.3'	-14.6'	59.4'	119°59.9'		51°20.6'		37°48.1'		9°58.7'		45°01.8'	
12	317°32.7'	S 10°13.3'	10.2'	-14.5'	59.4'	119°26.0'		51°03.2'		37°12.6'		10°29.2'		45°34.9'	
13	332°01.9'	S 10°27.8'	10.2'	-14.5'	59.4'	118°52.1'		50°46.0'		36°37.1'		11°00.2'		46°07.9'	
14	346°31.1'	S 10°42.3'	10.1'	-14.4'	59.4'	118°18.2'		50°28.9'		36°01.6'		11°31.6'		46°41.0'	
15	1°00.2'	S 10°56.7'	10.1'	-14.3'	59.4'	117°44.2'		50°12.2'		35°26.1'		12°03.5'		47°14.1'	
16	15°29.3'	S 11°11.0'	10.0'	-14.3'	59.4'	117°10.3'		49°55.7'		34°50.6'	6°55.9'	12°35.7'		47°47.2'	
17	29°58.3'	S 11°25.3'	10.0'	-14.2'	59.4'	116°36.3'		49°39.4'		34°15.1'	7°24.0'	13°08.2'	30°30.4'	48°20.3'	
18	44°27.3'	S 11°39.5'	9.9'	-14.2'	59.4'	116°02.2'		49°23.3'		33°39.6'	7°52.7'	13°40.9'	30°45.8'	48°53.4'	
19	58°56.2'	S 11°53.7'	9.8'	-14.1'	59.4'	115°28.2'		49°07.6'		33°04.2'	8°22.0'	14°13.9'	31°01.6'	49°26.6'	
20	73°25.0'	S 12°07.8'	9.8'	-14.0'	59.4'	114°54.1'		48°52.1'		32°28.7'	8°51.7'	14°47.2'	31°18.0'	49°59.7'	
21	87°53.8'	S 12°21.8'	9.7'	-14.0'	59.4'	114°20.1'				31°53.3'	9°21.7'	15°20.6'	31°34.9'	50°32.8'	
22	102°22.5'	S 12°35.7'	9.7'	-13.9'	59.4'	113°46.0'				31°17.8'	9°52.0'	15°54.2'	31°52.2'	51°05.9'	
23	116°51.2'	S 12°49.6'	9.6'	-13.8'	59.4'	113°11.9'				30°42.4'	10°22.6'	16°27.9'	32°10.0'	51°39.1'	
Mer. pass.		14 h 56 m SD 16.2'		phase 11%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°03.3'	N 89°21.0'
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	350°14.0'	180°49.2'	N 4°33.2'	142°28.0'	S 12°18.1'	23°00.8'	S 14°28.9'	39°59.8'	S 19°09.3'	172°16.3'	N 1°48.2'			
1	5°16.5'	195°49.4'	N 4°32.3'	157°27.7'	S 12°19.3'	38°03.6'	S 14°29.0'	55°02.4'	S 19°09.3'	187°17.3'	N 1°47.6'			
2	20°18.9'	210°49.6'	N 4°31.3'	172°27.5'	S 12°20.5'	53°06.3'	S 14°29.1'	70°05.0'	S 19°09.3'	202°18.3'	N 1°46.9'			
3	35°21.4'	225°49.8'	N 4°30.4'	187°27.3'	S 12°21.7'	68°09.0'	S 14°29.2'	85°07.5'	S 19°09.4'	217°19.3'	N 1°46.2'			
4	50°23.9'	240°50.0'	N 4°29.4'	202°27.0'	S 12°22.8'	83°11.7'	S 14°29.3'	100°10.1'	S 19°09.4'	232°20.3'	N 1°45.6'			
5	65°26.3'	255°50.3'	N 4°28.5'	217°26.8'	S 12°24.0'	98°14.5'	S 14°29.4'	115°12.7'	S 19°09.4'	247°21.3'	N 1°44.9'			
6	80°28.8'	270°50.5'	N 4°27.5'	232°26.6'	S 12°25.2'	113°17.2'	S 14°29.5'	130°15.3'	S 19°09.4'	262°22.3'	N 1°44.3'			
7	95°31.3'	285°50.7'	N 4°26.6'	247°26.3'	S 12°26.3'	128°19.9'	S 14°29.5'	145°17.9'	S 19°09.5'	277°23.3'	N 1°43.6'			
8	110°33.7'	300°50.9'	N 4°25.6'	262°26.1'	S 12°27.5'	143°22.7'	S 14°29.6'	160°20.5'	S 19°09.5'	292°24.3'	N 1°43.0'			
9	125°36.2'	315°51.1'	N 4°24.6'	277°25.9'	S 12°28.7'	158°25.4'	S 14°29.7'	175°23.0'	S 19°09.5'	307°25.2'	N 1°42.3'			
10	140°38.7'	330°51.4'	N 4°23.7'	292°25.6'	S 12°29.8'	173°28.1'	S 14°29.8'	190°25.6'	S 19°09.6'	322°26.2'	N 1°41.7'			
11	155°41.1'	345°51.6'	N 4°22.7'	307°25.4'	S 12°31.0'	188°30.8'	S 14°29.9'	205°28.2'	S 19°09.6'	337°27.2'	N 1°41.0'			
12	170°43.6'	0°51.8'	N 4°21.8'	322°25.1'	S 12°32.2'	203°33.6'	S 14°30.0'	220°30.8'	S 19°09.6'	352°28.2'	N 1°40.3'			
13	185°46.0'	15°52.0'	N 4°20.8'	337°24.9'	S 12°33.3'	218°36.3'	S 14°30.1'	235°33.4'	S 19°09.7'	7°29.2'	N 1°39.7'			
14	200°48.5'	30°52.2'	N 4°19.9'	352°24.7'	S 12°34.5'	233°39.0'	S 14°30.2'	250°35.9'	S 19°09.7'	22°30.2'	N 1°39.0'			
15	215°51.0'	45°52.5'	N 4°18.9'	7°24.4'	S 12°35.7'	248°41.7'	S 14°30.3'	265°38.5'	S 19°09.7'	37°31.2'	N 1°38.4'			
16	230°53.4'	60°52.7'	N 4°18.0'	22°24.2'	S 12°36.8'	263°44.5'	S 14°30.3'	280°41.1'	S 19°09.8'	52°32.2'	N 1°37.7'			
17	245°55.9'	75°52.9'	N 4°17.0'	37°24.0'	S 12°38.0'	278°47.2'	S 14°30.4'	295°43.7'	S 19°09.8'	67°33.2'	N 1°37.1'			
18	260°58.4'	90°53.1'	N 4°16.1'	52°23.7'	S 12°39.2'	293°49.9'	S 14°30.5'	310°46.3'	S 19°09.8'	82°34.2'	N 1°36.4'			
19	276°00.8'	105°53.3'	N 4°15.1'	67°23.5'	S 12°40.3'	308°52.6'	S 14°30.6'	325°48.8'	S 19°09.8'	97°35.2'	N 1°35.7'			
20	291°03.3'	120°53.6'	N 4°14.2'	82°23.2'	S 12°41.5'	323°55.4'	S 14°30.7'	340°51.4'	S 19°09.9'	112°36.2'	N 1°35.1'			
21	306°05.8'	135°53.8'	N 4°13.2'	97°23.0'	S 12°42.7'	338°58.1'	S 14°30.8'	355°54.0'	S 19°09.9'	127°37.1'	N 1°34.4'			
22	321°08.2'	150°54.0'	N 4°12.3'	112°22.8'	S 12°43.8'	354°00.8'	S 14°30.9'	10°56.6'	S 19°09.9'	142°38.1'	N 1°33.8'			
23	336°10.7'	165°54.2'	N 4°11.3'	127°22.5'	S 12°45.0'	9°03.5'	S 14°31.0'	25°59.2'	S 19°10.0'	157°39.1'	N 1°33.1'			
		SD 15.9' d -1.0'		v -0.2' d -1.2'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d -0.7'				
Mer. pass.		11 h 56 m 34 s		14 h 30 m		22 h 24 m		21 h 16 m		12 h 30 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altair	-Antares	+Venus	+Spica	+Arcturus	+Sun
0	131°19.8'	S 13°03.4'	9.5'	-13.7'	59.4'	103°52.9'	86°58.7'	81°30.6'	30°07.0'	10°53.4'	17°01.7'	32°28.2'	52°12.2'
1	145°48.3'	S 13°17.2'	9.5'	-13.7'	59.4'	103°16.9'	86°22.9'	81°00.9'	29°31.5'	11°24.4'	17°35.7'	32°46.9'	52°45.4'
2	160°16.8'	S 13°30.8'	9.4'	-13.6'	59.4'	102°40.9'	85°47.0'	80°31.3'	28°56.1'	11°55.6'	18°09.8'	33°06.0'	53°18.5'
3	174°45.2'	S 13°44.4'	9.3'	-13.5'	59.4'	102°04.9'	85°11.2'	80°01.6'	28°20.8'	12°26.9'	18°44.0'	33°25.4'	53°51.7'
4	189°13.5'	S 13°57.9'	9.3'	-13.4'	59.4'	101°29.0'	84°35.4'	79°32.0'	27°45.4'	12°58.3'	19°18.3'	33°45.3'	54°24.8'
5	203°41.8'	S 14°11.4'	9.2'	-13.4'	59.4'	100°53.0'	83°59.6'	79°02.4'	27°10.0'	13°29.9'	19°52.7'	34°05.6'	54°58.0'
6	218°10.0'	S 14°24.7'	9.1'	-13.3'	59.4'	100°17.0'	83°23.7'	78°32.8'	26°34.7'	14°01.5'	20°27.1'	34°26.2'	55°31.1'
7	232°38.2'	S 14°38.0'	9.1'	-13.2'	59.4'	99°41.1'	82°47.9'	78°03.3'	25°59.4'	14°33.3'	21°01.7'	34°47.2'	56°04.3'
8	247°06.2'	S 14°51.2'	9.0'	-13.1'	59.4'	99°05.1'	82°12.1'	77°33.8'	25°24.1'	15°05.1'	21°36.3'	35°08.5'	56°37.4'
9	261°34.2'	S 15°04.3'	8.9'	-13.0'	59.4'	98°29.1'	81°36.3'	77°04.3'	24°48.9'	15°37.0'	22°10.9'	35°30.2'	57°10.6'
10	276°02.2'	S 15°17.3'	8.9'	-12.9'	59.4'	97°53.2'	81°00.5'	76°34.8'	24°13.6'	16°08.9'	22°45.6'	35°52.2'	57°43.7'
11	290°30.1'	S 15°30.2'	8.8'	-12.8'	59.4'	97°17.2'	80°24.7'	76°05.4'	23°38.4'	16°41.0'	23°20.3'	36°14.5'	58°16.9'
12	304°57.9'	S 15°43.0'	8.7'	-12.7'	59.4'	96°41.3'	79°48.9'	75°36.0'	23°03.2'	17°13.0'	23°55.1'	36°37.1'	58°50.0'
13	319°25.6'	S 15°55.8'	8.7'	-12.6'	59.4'	96°05.3'	79°13.1'	75°06.6'	22°28.1'	17°45.1'	24°30.0'	36°60.0'	59°23.2'
14	333°53.2'	S 16°08.4'	8.6'	-12.6'	59.4'	95°29.4'	78°37.3'	74°37.3'	21°53.0'	18°17.3'	25°04.8'	37°23.2'	59°56.4'
15	348°20.8'	S 16°21.0'	8.5'	-12.5'	59.4'	94°53.4'	78°01.5'	74°08.0'	21°17.9'	18°49.4'	25°39.7'	37°46.7'	60°29.5'
16	2°48.4'	S 16°33.4'	8.4'	-12.4'	59.4'	94°17.5'	77°25.7'	73°38.7'	20°42.8'	19°21.7'	26°14.7'	38°10.4'	61°02.7'
17	17°15.8'	S 16°45.8'	8.4'	-12.3'	59.4'	93°41.5'	76°49.9'	73°09.5'	20°07.8'	19°53.9'	26°49.6'	38°34.4'	61°35.8'
18	31°43.2'	S 16°58.0'	8.3'	-12.2'	59.4'	93°05.6'	76°14.1'	72°40.3'	19°32.9'	20°26.2'	27°24.6'	38°58.7'	62°09.0'
19	46°10.5'	S 17°10.2'	8.2'	-12.1'	59.4'	92°29.7'	75°38.4'	72°11.2'	18°58.0'	20°58.5'	27°59.6'	39°23.2'	62°42.1'
20	60°37.7'	S 17°22.3'	8.2'	-11.9'	59.4'	91°53.7'	75°02.6'	71°42.1'	18°23.2'	21°30.8'	28°34.7'	39°47.9'	63°15.2'
21	75°04.9'	S 17°34.2'	8.1'	-11.8'	59.4'	91°17.8'	74°26.8'	71°13.1'	17°48.4'	22°03.2'	29°09.7'	40°12.9'	63°48.4'
22	89°32.0'	S 17°46.0'	8.0'	-11.7'	59.4'	90°41.9'	73°51.1'	70°44.1'	17°13.7'	22°35.5'	29°44.8'	40°38.1'	64°21.5'
23	103°59.0'	S 17°57.8'	7.9'	-11.6'	59.4'	90°06.0'	73°15.3'	70°15.1'	16°39.0'	23°07.9'	30°19.9'	41°03.4'	64°54.6'
Mer. pass.		15 h 48 m SD 16.2'		phase 19%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°02.8'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	351°13.2'		180°54.4'	N 4°10.4'	142°22.3'	S 12°46.1'	24°06.3'	S 14°31.1'	41°01.7'	S 19°10.0'	172°40.1'	N 1°32.5'
1	6°15.6'		195°54.7'	N 4°09.4'	157°22.0'	S 12°47.3'	39°09.0'	S 14°31.1'	56°04.3'	S 19°10.0'	187°41.1'	N 1°31.8'
2	21°18.1'		210°54.9'	N 4°08.4'	172°21.8'	S 12°48.5'	54°11.7'	S 14°31.2'	71°06.9'	S 19°10.1'	202°42.1'	N 1°31.2'
3	36°20.5'		225°55.1'	N 4°07.5'	187°21.6'	S 12°49.6'	69°14.4'	S 14°31.3'	86°09.5'	S 19°10.1'	217°43.1'	N 1°30.5'
4	51°23.0'		240°55.3'	N 4°06.5'	202°21.3'	S 12°50.8'	84°17.2'	S 14°31.4'	101°12.1'	S 19°10.1'	232°44.1'	N 1°29.8'
5	66°25.5'		255°55.5'	N 4°05.6'	217°21.1'	S 12°52.0'	99°19.9'	S 14°31.5'	116°14.6'	S 19°10.1'	247°45.1'	N 1°29.2'
6	81°27.9'		270°55.8'	N 4°04.6'	232°20.8'	S 12°53.1'	114°22.6'	S 14°31.6'	131°17.2'	S 19°10.2'	262°46.1'	N 1°28.5'
7	96°30.4'		285°56.0'	N 4°03.7'	247°20.6'	S 12°54.3'	129°25.3'	S 14°31.7'	146°19.8'	S 19°10.2'	277°47.1'	N 1°27.9'
8	111°32.9'		300°56.2'	N 4°02.7'	262°20.4'	S 12°55.4'	144°28.0'	S 14°31.8'	161°22.4'	S 19°10.2'	292°48.1'	N 1°27.2'
9	126°35.3'		315°56.4'	N 4°01.8'	277°20.1'	S 12°56.6'	159°30.8'	S 14°31.8'	176°25.0'	S 19°10.3'	307°49.0'	N 1°26.6'
10	141°37.8'		330°56.6'	N 4°00.8'	292°19.9'	S 12°57.7'	174°33.5'	S 14°31.9'	191°27.5'	S 19°10.3'	322°50.0'	N 1°25.9'
11	156°40.3'		345°56.9'	N 3°59.9'	307°19.6'	S 12°58.9'	189°36.2'	S 14°32.0'	206°30.1'	S 19°10.3'	337°51.0'	N 1°25.2'
12	171°42.7'		0°57.1'	N 3°58.9'	322°19.4'	S 13°00.1'	204°38.9'	S 14°32.1'	221°32.7'	S 19°10.3'	352°52.0'	N 1°24.6'
13	186°45.2'		15°57.3'	N 3°57.9'	337°19.1'	S 13°01.2'	219°41.7'	S 14°32.2'	236°35.3'	S 19°10.4'	7°53.0'	N 1°23.9'
14	201°47.7'		30°57.5'	N 3°57.0'	352°18.9'	S 13°02.4'	234°44.4'	S 14°32.3'	251°37.8'	S 19°10.4'	22°54.0'	N 1°23.3'
15	216°50.1'		45°57.8'	N 3°56.0'	7°18.7'	S 13°03.5'	249°47.1'	S 14°32.4'	266°40.4'	S 19°10.4'	37°55.0'	N 1°22.6'
16	231°52.6'		60°58.0'	N 3°55.1'	22°18.4'	S 13°04.7'	264°49.8'	S 14°32.5'	281°43.0'	S 19°10.5'	52°56.0'	N 1°22.0'
17	246°55.0'		75°58.2'	N 3°54.1'	37°18.2'	S 13°05.8'	279°52.5'	S 14°32.5'	296°45.6'	S 19°10.5'	67°57.0'	N 1°21.3'
18	261°57.5'		90°58.4'	N 3°53.2'	52°17.9'	S 13°07.0'	294°55.3'	S 14°32.6'	311°48.2'	S 19°10.5'	82°58.0'	N 1°20.6'
19	276°60.0'		105°58.6'	N 3°52.2'	67°17.7'	S 13°08.1'	309°58.0'	S 14°32.7'	326°50.7'	S 19°10.6'	97°59.0'	N 1°20.0'
20	292°02.4'		120°58.9'	N 3°51.3'	82°17.4'	S 13°09.3'	325°00.7'	S 14°32.8'	341°53.3'	S 19°10.6'	112°59.9'	N 1°19.3'
21	307°04.9'		135°59.1'	N 3°50.3'	97°17.2'	S 13°10.4'	340°03.4'	S 14°32.9'	356°55.9'	S 19°10.6'	128°00.9'	N 1°18.7'
22	322°07.4'		150°59.3'	N 3°49.3'	112°16.9'	S 13°11.6'	355°06.1'	S 14°33.0'	11°58.5'	S 19°10.6'	143°01.9'	N 1°18.0'
23	337°09.8'		165°59.5'	N 3°48.4'	127°16.7'	S 13°12.7'	10°08.9'	S 14°33.1'	27°01.0'	S 19°10.7'	158°02.9'	N 1°17.4'
			SD 15.9'	d -1.0'	v -0.2'	d -1.2'	v 2.7'	d -0.1'	v 2.6'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.			11 h 56 m 13 s		14 h 31 m		22 h 20 m		21 h 12 m		12 h 29 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altair	-Antares	+Venus	+Spica	+Arcturus	+Sun
0	118°25.9'	S 18°09.4'	7.9'	-11.5'	59.4'	89°30.1'	72°39.5'	69°46.2'	16°04.5'	23°40.3'	30°55.0'	41°29.0'	65°27.8'
1	132°52.8'	S 18°20.9'	7.8'	-11.4'	59.4'	88°54.2'	72°03.8'	69°17.4'	15°30.0'	24°12.7'	31°30.2'	41°54.8'	66°00.9'
2	147°19.6'	S 18°32.3'	7.7'	-11.3'	59.4'	88°18.3'	71°28.1'	68°48.6'	14°55.6'	24°45.1'	32°05.3'	42°20.8'	66°34.0'
3	161°46.3'	S 18°43.6'	7.6'	-11.2'	59.4'	87°42.4'	70°52.3'	68°19.8'	14°21.4'	25°17.5'	32°40.5'	42°47.0'	67°07.1'
4	176°12.9'	S 18°54.8'	7.6'	-11.1'	59.4'	87°06.5'	70°16.6'	67°51.1'	13°47.3'	25°50.0'	33°15.7'	43°13.4'	67°40.2'
5	190°39.5'	S 19°05.8'	7.5'	-10.9'	59.4'	86°30.6'	69°40.9'	67°22.5'	13°13.3'	26°22.4'	33°50.8'	43°39.9'	68°13.3'
6	205°06.0'	S 19°16.8'	7.4'	-10.8'	59.4'	85°54.8'	69°05.2'	66°54.0'	12°39.5'	26°54.9'	34°26.0'	44°06.6'	68°46.4'
7	219°32.5'	S 19°27.6'	7.4'	-10.7'	59.4'	85°18.9'	68°29.5'	66°25.5'	12°05.8'	27°27.3'	35°01.2'	44°33.4'	69°19.5'
8	233°58.8'	S 19°38.3'	7.3'	-10.6'	59.4'	84°43.0'	67°53.8'	65°57.0'	11°32.4'	27°59.8'	35°36.4'	45°00.5'	69°52.6'
9	248°25.1'	S 19°48.9'	7.2'	-10.5'	59.4'	84°07.2'	67°18.1'	65°28.6'	10°59.2'	28°32.3'	36°11.6'	45°27.6'	70°25.7'
10	262°51.3'	S 19°59.3'	7.1'	-10.3'	59.4'	83°31.4'	66°42.4'	65°00.3'	10°26.2'	29°04.8'	36°46.8'	45°54.9'	70°58.8'
11	277°17.4'	S 20°09.7'	7.1'	-10.2'	59.4'	82°55.5'	66°06.7'	64°32.1'	9°53.6'	29°37.2'	37°22.1'	46°22.4'	71°31.9'
12	291°43.5'	S 20°19.9'	7.0'	-10.1'	59.4'	82°19.7'	65°31.1'	64°04.0'	9°21.4'	30°09.7'	37°57.3'	46°50.0'	72°04.9'
13	306°09.5'	S 20°29.9'	6.9'	-9.9'	59.4'	81°43.9'	64°55.4'	63°35.9'	8°49.6'	30°42.2'	38°32.5'	47°17.7'	72°38.0'
14	320°35.4'	S 20°39.9'	6.9'	-9.8'	59.4'	81°08.1'	64°19.8'	63°07.9'	8°18.3'	31°14.7'	39°07.7'	47°45.6'	73°11.0'
15	335°01.3'	S 20°49.7'	6.8'	-9.7'	59.4'	80°32.3'	63°44.1'	62°39.9'	7°47.7'	31°47.2'	39°43.0'	48°13.5'	73°44.1'
16	349°27.1'	S 20°59.4'	6.7'	-9.5'	59.3'	79°56.5'	63°08.5'	62°12.1'		32°19.6'	40°18.2'	48°41.6'	74°17.1'
17	3°52.8'	S 21°08.9'	6.6'	-9.4'	59.3'	79°20.7'	62°32.9'	61°44.3'		32°52.1'	40°53.4'	49°09.8'	74°50.1'
18	18°18.4'	S 21°18.3'	6.6'	-9.3'	59.3'	78°44.9'	61°57.3'	61°16.6'		33°24.6'	41°28.7'	49°38.1'	75°23.2'
19	32°44.0'	S 21°27.6'	6.5'	-9.1'	59.3'	78°09.1'	61°21.7'	60°49.0'		33°57.1'	42°03.9'	50°06.6'	75°56.2'
20	47°09.5'	S 21°36.8'	6.4'	-9.0'	59.3'	77°33.4'	60°46.1'	60°21.5'		34°29.6'	42°39.2'	50°35.1'	76°29.2'
21	61°34.9'	S 21°45.8'	6.4'	-8.9'	59.3'	76°57.6'	60°10.5'	59°54.1'		35°02.0'	43°14.4'	51°03.7'	77°02.2'
22	76°00.3'	S 21°54.6'	6.3'	-8.7'	59.3'	76°21.9'	59°34.9'	59°26.7'		35°34.5'	43°49.6'	51°32.5'	77°35.2'
23	90°25.6'	S 22°03.3'	6.2'	-8.6'	59.3'	75°46.2'	58°59.4'	58°59.5'		36°07.0'	44°24.8'	52°01.3'	78°08.2'
Mer. pass.			16 h 44 m SD 16.2'	phase 29%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°02.3'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.8'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	352°12.3'	180°59.7'	N 3°47.4'	142°16.5'	S 13°13.9'		25°11.6'	S 14°33.1'		42°03.6'	S 19°10.7'		173°03.9'	N 1°16.7'				
1	7°14.8'	195°60.0'	N 3°46.5'	157°16.2'	S 13°15.0'		40°14.3'	S 14°33.2'		57°06.2'	S 19°10.7'		188°04.9'	N 1°16.1'				
2	22°17.2'	211°00.2'	N 3°45.5'	172°16.0'	S 13°16.2'		55°17.0'	S 14°33.3'		72°08.8'	S 19°10.8'		203°05.9'	N 1°15.4'				
3	37°19.7'	226°00.4'	N 3°44.6'	187°15.7'	S 13°17.3'		70°19.7'	S 14°33.4'		87°11.3'	S 19°10.8'		218°06.9'	N 1°14.7'				
4	52°22.2'	241°00.6'	N 3°43.6'	202°15.5'	S 13°18.5'		85°22.5'	S 14°33.5'		102°13.9'	S 19°10.8'		233°07.9'	N 1°14.1'				
5	67°24.6'	256°00.9'	N 3°42.6'	217°15.2'	S 13°19.6'		100°25.2'	S 14°33.6'		117°16.5'	S 19°10.8'		248°08.9'	N 1°13.4'				
6	82°27.1'	271°01.1'	N 3°41.7'	232°15.0'	S 13°20.8'		115°27.9'	S 14°33.7'		132°19.1'	S 19°10.9'		263°09.8'	N 1°12.8'				
7	97°29.5'	286°01.3'	N 3°40.7'	247°14.7'	S 13°21.9'		130°30.6'	S 14°33.7'		147°21.6'	S 19°10.9'		278°10.8'	N 1°12.1'				
8	112°32.0'	301°01.5'	N 3°39.8'	262°14.5'	S 13°23.1'		145°33.3'	S 14°33.8'		162°24.2'	S 19°10.9'		293°11.8'	N 1°11.5'				
9	127°34.5'	316°01.7'	N 3°38.8'	277°14.2'	S 13°24.2'		160°36.0'	S 14°33.9'		177°26.8'	S 19°11.0'		308°12.8'	N 1°10.8'				
10	142°36.9'	331°02.0'	N 3°37.9'	292°14.0'	S 13°25.4'		175°38.8'	S 14°34.0'		192°29.4'	S 19°11.0'		323°13.8'	N 1°10.1'				
11	157°39.4'	346°02.2'	N 3°36.9'	307°13.7'	S 13°26.5'		190°41.5'	S 14°34.1'		207°31.9'	S 19°11.0'		338°14.8'	N 1°09.5'				
12	172°41.9'	1°02.4'	N 3°35.9'	322°13.5'	S 13°27.7'		205°44.2'	S 14°34.2'		222°34.5'	S 19°11.0'		353°15.8'	N 1°08.8'				
13	187°44.3'	16°02.6'	N 3°35.0'	337°13.2'	S 13°28.8'		220°46.9'	S 14°34.3'		237°37.1'	S 19°11.1'		8°16.8'	N 1°08.2'				
14	202°46.8'	31°02.9'	N 3°34.0'	352°13.0'	S 13°30.0'		235°49.6'	S 14°34.3'		252°39.7'	S 19°11.1'		23°17.8'	N 1°07.5'				
15	217°49.3'	46°03.1'	N 3°33.1'	7°12.7'	S 13°31.1'		250°52.3'	S 14°34.4'		267°42.2'	S 19°11.1'		38°18.8'	N 1°06.8'				
16	232°51.7'	61°03.3'	N 3°32.1'	22°12.5'	S 13°32.2'		265°55.0'	S 14°34.5'		282°44.8'	S 19°11.2'		53°19.7'	N 1°06.2'				
17	247°54.2'	76°03.5'	N 3°31.2'	37°12.2'	S 13°33.4'		280°57.8'	S 14°34.6'		297°47.4'	S 19°11.2'		68°20.7'	N 1°05.5'				
18	262°56.6'	91°03.7'	N 3°30.2'	52°12.0'	S 13°34.5'		296°00.5'	S 14°34.7'		312°50.0'	S 19°11.2'		83°21.7'	N 1°04.9'				
19	277°59.1'	106°04.0'	N 3°29.2'	67°11.7'	S 13°35.7'		311°03.2'	S 14°34.8'		327°52.5'	S 19°11.2'		98°22.7'	N 1°04.2'				
20	293°01.6'	121°04.2'	N 3°28.3'	82°11.5'	S 13°36.8'		326°05.9'	S 14°34.9'		342°55.1'	S 19°11.3'		113°23.7'	N 1°03.6'				
21	308°04.0'	136°04.4'	N 3°27.3'	97°11.2'	S 13°38.0'		341°08.6'	S 14°34.9'		357°57.7'	S 19°11.3'		128°24.7'	N 1°02.9'				
22	323°06.5'	151°04.6'	N 3°26.4'	112°11.0'	S 13°39.1'		356°11.3'	S 14°35.0'		13°00.2'	S 19°11.3'		143°25.7'	N 1°02.2'				
23	338°09.0'	166°04.9'	N 3°25.4'	127°10.7'	S 13°40.2'		11°14.1'	S 14°35.1'		28°02.8'	S 19°11.4'		158°26.7'	N 1°01.6'				
		SD 15.9'	d -1.0'		v -0.2'	d -1.1'		v 2.7'	d -0.1'		v 2.6'	d -0.0'		v 1.0'	d -0.7'			
Mer. pass.		11 h 55 m 51 s		14 h 31 m			22 h 15 m			21 h 8 m			12 h 27 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Altair	-Saturn	-Antares	+Venus	+Spica	+Arcturus	+Sun
0	104°50.8'	S 22°11.9'	6.2'	-8.4'	59.3'	75°10.5'	58°32.4'	58°23.8'		36°39.4'	45°00.1'	52°30.2'	78°41.1'
1	119°16.0'	S 22°20.4'	6.1'	-8.3'	59.3'	74°34.8'	58°05.4'	57°48.3'		37°11.9'	45°35.3'	52°59.2'	79°14.1'
2	133°41.1'	S 22°28.6'	6.0'	-8.1'	59.3'	73°59.1'	57°38.4'	57°12.8'		37°44.3'	46°10.5'	53°28.3'	79°47.0'
3	148°06.1'	S 22°36.8'	6.0'	-8.0'	59.3'	73°23.4'	57°11.6'	56°37.3'		38°16.8'	46°45.7'	53°57.4'	80°20.0'
4	162°31.1'	S 22°44.8'	5.9'	-7.9'	59.3'	72°47.7'	56°44.9'	56°01.8'		38°49.2'	47°20.9'	54°26.7'	80°52.9'
5	176°56.0'	S 22°52.6'	5.9'	-7.7'	59.3'	72°12.0'	56°18.3'	55°26.3'		39°21.7'	47°56.2'	54°56.0'	81°25.9'
6	191°20.9'	S 23°00.3'	5.8'	-7.6'	59.3'	71°36.4'	55°51.8'	54°50.8'		39°54.1'	48°31.4'	55°25.4'	81°58.8'
7	205°45.7'	S 23°07.9'	5.7'	-7.4'	59.2'	71°00.7'	55°25.5'	54°15.3'		40°26.5'	49°06.6'	55°54.8'	82°31.7'
8	220°10.4'	S 23°15.3'	5.7'	-7.2'	59.2'	70°25.1'	54°59.2'	53°39.9'		40°58.9'	49°41.8'	56°24.4'	83°04.6'
9	234°35.1'	S 23°22.5'	5.6'	-7.1'	59.2'	69°49.5'	54°33.1'	53°04.4'		41°31.4'	50°16.9'	56°54.0'	83°37.5'
10	248°59.7'	S 23°29.6'	5.6'	-6.9'	59.2'	69°13.9'	54°07.1'	52°29.0'		42°03.8'	50°52.1'	57°23.6'	84°10.3'
11	263°24.3'	S 23°36.6'	5.5'	-6.8'	59.2'	68°38.3'	53°41.3'	51°53.6'		42°36.2'	51°27.3'	57°53.3'	84°43.2'
12	277°48.8'	S 23°43.4'	5.5'	-6.6'	59.2'	68°02.7'	53°15.5'	51°18.2'		43°08.6'	52°02.5'	58°23.1'	85°16.1'
13	292°13.2'	S 23°50.0'	5.4'	-6.5'	59.2'	67°27.1'	52°49.9'	50°42.8'	7°34.3'	43°40.9'	52°37.6'	58°52.9'	85°48.9'
14	306°37.6'	S 23°56.5'	5.4'	-6.3'	59.2'	66°51.5'	52°24.5'	50°07.4'	8°04.4'	44°13.3'	53°12.8'	59°22.8'	86°21.7'
15	321°02.0'	S 24°02.8'	5.3'	-6.2'	59.2'	66°16.0'	51°59.2'	49°32.0'	8°35.2'	44°45.7'	53°47.9'	59°52.8'	86°54.6'
16	335°26.3'	S 24°08.9'	5.3'	-6.0'	59.2'	65°40.4'	51°34.0'	48°56.7'	9°06.6'	45°18.0'	54°23.1'	60°22.7'	87°27.4'
17	349°50.5'	S 24°14.9'	5.2'	-5.8'	59.2'	65°04.9'	51°09.0'	48°21.3'	9°38.3'	45°50.4'	54°58.2'	60°52.8'	88°00.2'
18	4°14.8'	S 24°20.7'	5.2'	-5.7'	59.1'	64°29.4'	50°44.2'	47°46.0'	10°10.5'	46°22.7'	55°33.3'	61°22.9'	88°33.0'
19	18°38.9'	S 24°26.4'	5.1'	-5.5'	59.1'	63°53.9'	50°19.5'	47°10.7'	10°43.0'	46°55.1'	56°08.4'	61°53.0'	89°05.8'
20	33°03.0'	S 24°31.9'	5.1'	-5.3'	59.1'	63°18.4'	49°55.0'	46°35.4'	11°15.8'	47°27.4'	56°43.5'	62°23.2'	89°38.5'
21	47°27.1'	S 24°37.3'	5.0'	-5.2'	59.1'	62°42.9'	49°30.6'	46°00.1'	11°48.8'	47°59.7'	57°18.6'	62°53.4'	90°11.3'
22	61°51.1'	S 24°42.4'	5.0'	-5.0'	59.1'	62°07.5'	49°06.4'	45°24.8'	12°22.0'	48°32.0'	57°53.7'	63°23.6'	90°44.0'
23	76°15.1'	S 24°47.4'	5.0'	-4.8'	59.1'	61°32.0'	48°42.4'	44°49.6'	12°55.3'	49°04.3'	58°28.8'	63°53.9'	91°16.8'
Mer. pass.		17 h 42 m SD 16.2'		phase 40%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°01.8'	N 89°21.0'
Rigil Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.2'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.8'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	353°11.4'	181°05.1'	N 3°24.4'	142°10.5'	S 13°41.4'	26°16.8'	S 14°35.2'	43°05.4'	S 19°11.4'	173°27.7'	N 1°00.9'	
1	8°13.9'	196°05.3'	N 3°23.5'	157°10.2'	S 13°42.5'	41°19.5'	S 14°35.3'	58°08.0'	S 19°11.4'	188°28.7'	N 1°00.3'	
2	23°16.4'	211°05.5'	N 3°22.5'	172°10.0'	S 13°43.7'	56°22.2'	S 14°35.4'	73°10.5'	S 19°11.4'	203°29.6'	N 0°59.6'	
3	38°18.8'	226°05.7'	N 3°21.6'	187°09.7'	S 13°44.8'	71°24.9'	S 14°35.4'	88°13.1'	S 19°11.5'	218°30.6'	N 0°59.0'	
4	53°21.3'	241°06.0'	N 3°20.6'	202°09.5'	S 13°45.9'	86°27.6'	S 14°35.5'	103°15.7'	S 19°11.5'	233°31.6'	N 0°58.3'	
5	68°23.8'	256°06.2'	N 3°19.6'	217°09.2'	S 13°47.1'	101°30.3'	S 14°35.6'	118°18.2'	S 19°11.5'	248°32.6'	N 0°57.6'	
6	83°26.2'	271°06.4'	N 3°18.7'	232°09.0'	S 13°48.2'	116°33.0'	S 14°35.7'	133°20.8'	S 19°11.6'	263°33.6'	N 0°57.0'	
7	98°28.7'	286°06.6'	N 3°17.7'	247°08.7'	S 13°49.3'	131°35.8'	S 14°35.8'	148°23.4'	S 19°11.6'	278°34.6'	N 0°56.3'	
8	113°31.1'	301°06.9'	N 3°16.8'	262°08.5'	S 13°50.5'	146°38.5'	S 14°35.9'	163°26.0'	S 19°11.6'	293°35.6'	N 0°55.7'	
9	128°33.6'	316°07.1'	N 3°15.8'	277°08.2'	S 13°51.6'	161°41.2'	S 14°35.9'	178°28.5'	S 19°11.6'	308°36.6'	N 0°55.0'	
10	143°36.1'	331°07.3'	N 3°14.8'	292°08.0'	S 13°52.7'	176°43.9'	S 14°36.0'	193°31.1'	S 19°11.7'	323°37.6'	N 0°54.4'	
11	158°38.5'	346°07.5'	N 3°13.9'	307°07.7'	S 13°53.9'	191°46.6'	S 14°36.1'	208°33.7'	S 19°11.7'	338°38.6'	N 0°53.7'	
12	173°41.0'	1°07.7'	N 3°12.9'	322°07.5'	S 13°55.0'	206°49.3'	S 14°36.2'	223°36.2'	S 19°11.7'	353°39.5'	N 0°53.0'	
13	188°43.5'	16°08.0'	N 3°12.0'	337°07.2'	S 13°56.1'	221°52.0'	S 14°36.3'	238°38.8'	S 19°11.7'	8°40.5'	N 0°52.4'	
14	203°45.9'	31°08.2'	N 3°11.0'	352°07.0'	S 13°57.3'	236°54.7'	S 14°36.4'	253°41.4'	S 19°11.8'	23°41.5'	N 0°51.7'	
15	218°48.4'	46°08.4'	N 3°10.0'	7°06.7'	S 13°58.4'	251°57.4'	S 14°36.4'	268°44.0'	S 19°11.8'	38°42.5'	N 0°51.1'	
16	233°50.9'	61°08.6'	N 3°09.1'	22°06.4'	S 13°59.5'	267°00.2'	S 14°36.5'	283°46.5'	S 19°11.8'	53°43.5'	N 0°50.4'	
17	248°53.3'	76°08.9'	N 3°08.1'	37°06.2'	S 14°00.7'	282°02.9'	S 14°36.6'	298°49.1'	S 19°11.9'	68°44.5'	N 0°49.8'	
18	263°55.8'	91°09.1'	N 3°07.2'	52°05.9'	S 14°01.8'	297°05.6'	S 14°36.7'	313°51.7'	S 19°11.9'	83°45.5'	N 0°49.1'	
19	278°58.3'	106°09.3'	N 3°06.2'	67°05.7'	S 14°02.9'	312°08.3'	S 14°36.8'	328°54.2'	S 19°11.9'	98°46.5'	N 0°48.4'	
20	294°00.7'	121°09.5'	N 3°05.2'	82°05.4'	S 14°04.1'	327°11.0'	S 14°36.9'	343°56.8'	S 19°11.9'	113°47.5'	N 0°47.8'	
21	309°03.2'	136°09.8'	N 3°04.3'	97°05.2'	S 14°05.2'	342°13.7'	S 14°36.9'	358°59.4'	S 19°12.0'	128°48.4'	N 0°47.1'	
22	324°05.6'	151°10.0'	N 3°03.3'	112°04.9'	S 14°06.3'	357°16.4'	S 14°37.0'	14°01.9'	S 19°12.0'	143°49.4'	N 0°46.5'	
23	339°08.1'	166°10.2'	N 3°02.3'	127°04.6'	S 14°07.4'	12°19.1'	S 14°37.1'	29°04.5'	S 19°12.0'	158°50.4'	N 0°45.8'	
		SD 15.9'	d -1.0'		v -0.3'	d -1.1'		v 2.7'	d -0.1'		v 2.6'	d -0.0'
Mer. pass.		11 h 55 m 30 s		14 h 32 m		22 h 11 m		21 h 4 m		12 h 25 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Venus	+Sun
0	90°39.1'	S 24°52.3'	4.9'	-4.7'	59.1'	71°39.6'	60°56.6'	48°18.6'	44°14.3'	13°28.9'		49°36.6'	91°49.5'
1	105°03.0'	S 24°57.0'	4.9'	-4.5'	59.1'	71°05.9'	60°21.2'	47°54.9'	43°39.1'	14°02.5'		50°08.9'	92°22.2'
2	119°26.9'	S 25°01.5'	4.9'	-4.3'	59.1'	70°32.2'	59°45.7'	47°31.5'	43°03.9'	14°36.3'		50°41.1'	92°54.9'
3	133°50.8'	S 25°05.8'	4.8'	-4.2'	59.1'	69°58.5'	59°10.3'	47°08.2'	42°28.7'	15°10.1'		51°13.4'	93°27.6'
4	148°14.6'	S 25°10.0'	4.8'	-4.0'	59.0'	69°24.8'	58°35.0'	46°45.1'	41°53.5'	15°44.1'		51°45.6'	94°00.2'
5	162°38.4'	S 25°14.0'	4.8'	-3.8'	59.0'	68°51.2'	57°59.6'	46°22.3'	41°18.4'	16°18.1'		52°17.9'	94°32.9'
6	177°02.1'	S 25°17.9'	4.7'	-3.7'	59.0'	68°17.6'	57°24.2'	45°59.6'	40°43.2'	16°52.2'		52°50.1'	95°05.5'
7	191°25.9'	S 25°21.5'	4.7'	-3.5'	59.0'	67°44.0'	56°48.9'	45°37.2'	40°08.1'	17°26.3'		53°22.3'	95°38.2'
8	205°49.6'	S 25°25.0'	4.7'	-3.3'	59.0'	67°10.4'	56°13.6'	45°14.9'	39°33.0'	18°00.6'		53°54.5'	96°10.8'
9	220°13.3'	S 25°28.4'	4.7'	-3.2'	59.0'	66°36.9'	55°38.3'	44°52.9'	38°57.9'	18°34.8'		54°26.7'	96°43.4'
10	234°37.0'	S 25°31.5'	4.7'	-3.0'	59.0'	66°03.4'	55°03.0'	44°31.2'	38°22.8'	19°09.1'		54°58.9'	97°16.0'
11	249°00.6'	S 25°34.5'	4.6'	-2.8'	59.0'	65°29.9'	54°27.7'	44°09.6'	37°47.8'	19°43.4'		55°31.0'	97°48.6'
12	263°24.2'	S 25°37.3'	4.6'	-2.6'	59.0'	64°56.4'	53°52.4'	43°48.3'	37°12.7'	20°17.8'	48°44.4'	56°03.2'	98°21.2'
13	277°47.9'	S 25°40.0'	4.6'	-2.5'	58.9'	64°23.0'	53°17.2'	43°27.3'	36°37.7'	20°52.2'	48°59.5'	56°35.3'	98°53.7'
14	292°11.5'	S 25°42.4'	4.6'	-2.3'	58.9'	63°49.6'	52°41.9'	43°06.5'	36°02.7'	21°26.6'	49°14.9'	57°07.5'	99°26.3'
15	306°35.1'	S 25°44.7'	4.6'	-2.1'	58.9'	63°16.2'	52°06.7'	42°46.0'	35°27.7'	22°01.0'	49°30.5'	57°39.6'	99°58.8'
16	320°58.6'	S 25°46.8'	4.6'	-2.0'	58.9'	62°42.9'	51°31.5'	42°25.7'	34°52.8'	22°35.5'	49°46.3'	58°11.7'	100°31.3'
17	335°22.2'	S 25°48.8'	4.6'	-1.8'	58.9'	62°09.6'	50°56.3'	42°05.7'	34°17.8'	23°09.9'	50°02.4'	58°43.8'	101°03.8'
18	349°45.8'	S 25°50.6'	4.6'	-1.6'	58.9'	61°36.3'	50°21.1'	41°46.0'	33°42.9'	23°44.4'	50°18.7'	59°15.9'	101°36.3'
19	4°09.4'	S 25°52.2'	4.6'	-1.4'	58.9'	61°03.1'	49°46.0'	41°26.5'	33°08.0'	24°18.9'	50°35.2'	59°48.0'	102°08.8'
20	18°32.9'	S 25°53.6'	4.6'	-1.3'	58.9'	60°29.8'	49°10.8'	41°07.3'	32°33.1'	24°53.4'	50°51.9'	60°20.0'	102°41.2'
21	32°56.5'	S 25°54.9'	4.6'	-1.1'	58.8'	59°56.7'	48°35.7'	40°48.5'	31°58.2'	25°27.9'	51°08.9'	60°52.1'	103°13.7'
22	47°20.1'	S 25°55.9'	4.6'	-0.9'	58.8'	59°23.5'	48°00.6'	40°29.9'	31°23.4'	26°02.5'	51°26.1'	61°24.1'	103°46.1'
23	61°43.6'	S 25°56.9'	4.6'	-0.7'	58.8'	58°50.4'	47°25.5'	40°11.7'	30°48.6'	26°37.0'	51°43.4'	61°56.1'	104°18.5'
Mer. pass.		18 h 43 m SD 16.1'		phase 52%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.7'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.9'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°01.3'	N 89°21.0'
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	354°10.6'	181°10.4'	N 3°01.4'	142°04.4'	S 14°08.6'	27°21.8'	S 14°37.2'	44°07.1'	S 19°12.0'	173°51.4'	N 0°45.1'
1	9°13.0'	196°10.6'	N 3°00.4'	157°04.1'	S 14°09.7'	42°24.5'	S 14°37.3'	59°09.7'	S 19°12.1'	188°52.4'	N 0°44.5'
2	24°15.5'	211°10.9'	N 2°59.5'	172°03.9'	S 14°10.8'	57°27.2'	S 14°37.3'	74°12.2'	S 19°12.1'	203°53.4'	N 0°43.8'
3	39°18.0'	226°11.1'	N 2°58.5'	187°03.6'	S 14°11.9'	72°30.0'	S 14°37.4'	89°14.8'	S 19°12.1'	218°54.4'	N 0°43.2'
4	54°20.4'	241°11.3'	N 2°57.5'	202°03.4'	S 14°13.1'	87°32.7'	S 14°37.5'	104°17.4'	S 19°12.2'	233°55.4'	N 0°42.5'
5	69°22.9'	256°11.5'	N 2°56.6'	217°03.1'	S 14°14.2'	102°35.4'	S 14°37.6'	119°19.9'	S 19°12.2'	248°56.4'	N 0°41.9'
6	84°25.4'	271°11.8'	N 2°55.6'	232°02.8'	S 14°15.3'	117°38.1'	S 14°37.7'	134°22.5'	S 19°12.2'	263°57.3'	N 0°41.2'
7	99°27.8'	286°12.0'	N 2°54.7'	247°02.6'	S 14°16.4'	132°40.8'	S 14°37.8'	149°25.1'	S 19°12.2'	278°58.3'	N 0°40.5'
8	114°30.3'	301°12.2'	N 2°53.7'	262°02.3'	S 14°17.6'	147°43.5'	S 14°37.8'	164°27.6'	S 19°12.3'	293°59.3'	N 0°39.9'
9	129°32.8'	316°12.4'	N 2°52.7'	277°02.1'	S 14°18.7'	162°46.2'	S 14°37.9'	179°30.2'	S 19°12.3'	309°00.3'	N 0°39.2'
10	144°35.2'	331°12.7'	N 2°51.8'	292°01.8'	S 14°19.8'	177°48.9'	S 14°38.0'	194°32.8'	S 19°12.3'	324°01.3'	N 0°38.6'
11	159°37.7'	346°12.9'	N 2°50.8'	307°01.5'	S 14°20.9'	192°51.6'	S 14°38.1'	209°35.3'	S 19°12.3'	339°02.3'	N 0°37.9'
12	174°40.1'	1°13.1'	N 2°49.8'	322°01.3'	S 14°22.1'	207°54.3'	S 14°38.2'	224°37.9'	S 19°12.4'	354°03.3'	N 0°37.2'
13	189°42.6'	16°13.3'	N 2°48.9'	337°01.0'	S 14°23.2'	222°57.0'	S 14°38.2'	239°40.5'	S 19°12.4'	9°04.3'	N 0°36.6'
14	204°45.1'	31°13.6'	N 2°47.9'	352°00.8'	S 14°24.3'	237°59.7'	S 14°38.3'	254°43.0'	S 19°12.4'	24°05.3'	N 0°35.9'
15	219°47.5'	46°13.8'	N 2°47.0'	7°00.5'	S 14°25.4'	253°02.4'	S 14°38.4'	269°45.6'	S 19°12.4'	39°06.2'	N 0°35.3'
16	234°50.0'	61°14.0'	N 2°46.0'	22°00.2'	S 14°26.5'	268°05.1'	S 14°38.5'	284°48.2'	S 19°12.5'	54°07.2'	N 0°34.6'
17	249°52.5'	76°14.2'	N 2°45.0'	36°60.0'	S 14°27.7'	283°07.8'	S 14°38.6'	299°50.7'	S 19°12.5'	69°08.2'	N 0°34.0'
18	264°54.9'	91°14.4'	N 2°44.1'	51°59.7'	S 14°28.8'	298°10.5'	S 14°38.6'	314°53.3'	S 19°12.5'	84°09.2'	N 0°33.3'
19	279°57.4'	106°14.7'	N 2°43.1'	66°59.5'	S 14°29.9'	313°13.2'	S 14°38.7'	329°55.9'	S 19°12.6'	99°10.2'	N 0°32.6'
20	294°59.9'	121°14.9'	N 2°42.1'	81°59.2'	S 14°31.0'	328°15.9'	S 14°38.8'	344°58.4'	S 19°12.6'	114°11.2'	N 0°32.0'
21	310°02.3'	136°15.1'	N 2°41.2'	96°58.9'	S 14°32.1'	343°18.7'	S 14°38.9'	0°01.0'	S 19°12.6'	129°12.2'	N 0°31.3'
22	325°04.8'	151°15.3'	N 2°40.2'	111°58.7'	S 14°33.2'	358°21.4'	S 14°39.0'	15°03.6'	S 19°12.6'	144°13.2'	N 0°30.7'
23	340°07.3'	166°15.6'	N 2°39.2'	126°58.4'	S 14°34.4'	13°24.1'	S 14°39.0'	30°06.1'	S 19°12.7'	159°14.1'	N 0°30.0'
		SD 15.9'	d -1.0'		v -0.3' d -1.1'		v 2.7' d -0.1'		v 2.6' d -0.0'		v 1.0' d -0.7'
Mer. pass.		11 h 55 m 9 s		14 h 32 m		22 h 7 m		21 h 0 m		12 h 24 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Sun
0	76°07.2'	S 25°57.6'	4.6'	-0.6'	58.8'	58°17.3'	46°50.4'	39°53.7'	30°13.8'	27°11.5'	52°01.0'	56°13.4'	104°50.9'
1	90°30.8'	S 25°58.2'	4.6'	-0.4'	58.8'	57°44.3'	46°15.4'	39°36.1'	29°39.0'	27°46.1'	52°18.8'	56°32.0'	105°23.3'
2	104°54.4'	S 25°58.5'	4.6'	-0.2'	58.8'	57°11.3'	45°40.3'	39°18.8'	29°04.3'	28°20.6'	52°36.8'	56°50.7'	105°55.7'
3	119°18.0'	S 25°58.8'	4.6'	-0.0'	58.8'	56°38.3'	45°05.3'	39°01.9'	28°29.6'	28°55.1'	52°54.9'	57°09.6'	106°28.1'
4	133°41.7'	S 25°58.8'	4.6'	0.1'	58.8'	56°05.4'	44°30.3'	38°45.3'	27°54.9'	29°29.7'	53°13.3'	57°28.6'	107°00.4'
5	148°05.3'	S 25°58.7'	4.7'	0.3'	58.7'	55°32.5'	43°55.3'	38°29.0'	27°20.2'	30°04.2'	53°31.8'	57°47.8'	107°32.7'
6	162°29.0'	S 25°58.4'	4.7'	0.5'	58.7'	54°59.7'	43°20.3'	38°13.1'	26°45.6'	30°38.8'	53°50.6'	58°07.2'	108°05.1'
7	176°52.6'	S 25°57.9'	4.7'	0.6'	58.7'	54°26.9'	42°45.4'	37°57.6'	26°11.0'	31°13.3'	54°09.5'	58°26.7'	108°37.4'
8	191°16.4'	S 25°57.3'	4.7'	0.8'	58.7'	53°54.1'	42°10.4'		25°36.4'	31°47.8'	54°28.5'	58°46.3'	109°09.6'
9	205°40.1'	S 25°56.4'	4.8'	1.0'	58.7'	53°21.4'	41°35.5'		25°01.9'	32°22.3'	54°47.8'	59°06.1'	109°41.9'
10	220°03.8'	S 25°55.5'	4.8'	1.2'	58.7'	52°48.7'	41°00.6'		24°27.3'	32°56.9'	55°07.2'	59°26.0'	110°14.2'
11	234°27.6'	S 25°54.3'	4.8'	1.3'	58.7'	52°16.1'	40°25.7'		23°52.9'	33°31.4'	55°26.7'	59°46.0'	110°46.4'
12	248°51.4'	S 25°53.0'	4.8'	1.5'	58.6'	51°43.5'	39°50.9'		23°18.4'	34°05.9'	55°46.4'	60°06.2'	111°18.6'
13	263°15.3'	S 25°51.5'	4.9'	1.7'	58.6'	51°11.0'	39°16.0'		22°44.0'	34°40.4'	56°06.3'	60°26.4'	111°50.8'
14	277°39.1'	S 25°49.8'	4.9'	1.8'	58.6'	50°38.5'	38°41.2'		22°09.6'	35°14.9'	56°26.3'	60°46.8'	112°23.0'
15	292°03.1'	S 25°48.0'	5.0'	2.0'	58.6'	50°06.1'	38°06.4'		21°35.3'	35°49.4'	56°46.5'	61°07.4'	112°55.2'
16	306°27.0'	S 25°45.9'	5.0'	2.2'	58.6'	49°33.7'	37°31.6'		21°01.0'	36°23.9'	57°06.8'	61°28.0'	113°27.4'
17	320°51.0'	S 25°43.8'	5.0'	2.3'	58.6'	49°01.4'	36°56.8'		20°26.7'	36°58.3'	57°27.3'	61°48.8'	113°59.5'
18	335°15.0'	S 25°41.4'	5.1'	2.5'	58.6'	48°29.2'	36°22.1'		19°52.5'	37°32.8'	57°47.8'	62°09.6'	114°31.7'
19	349°39.1'	S 25°38.9'	5.1'	2.7'	58.5'	47°56.9'	35°47.4'		19°18.4'	38°07.3'	58°08.6'	62°30.6'	115°03.8'
20	4°03.2'	S 25°36.2'	5.2'	2.8'	58.5'	47°24.8'	35°12.7'		18°44.3'	38°41.7'	58°29.4'	62°51.7'	115°35.9'
21	18°27.4'	S 25°33.4'	5.2'	3.0'	58.5'	46°52.7'	34°38.0'		18°10.3'	39°16.2'	58°50.4'	63°12.9'	116°07.9'
22	32°51.6'	S 25°30.4'	5.3'	3.2'	58.5'	46°20.7'	34°03.4'		17°36.3'	39°50.6'	59°11.5'	63°34.2'	116°40.0'
23	47°15.9'	S 25°27.2'	5.3'	3.3'	58.5'	45°48.7'	33°28.7'		17°02.4'	40°25.0'	59°32.7'	63°55.6'	117°12.1'
Mer. pass.		19 h 43 m SD 16.0'		phase 63%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.6'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.9'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.9'	N 5°10.3'	Polaris	+2.0	315°00.8'	N 89°21.0'
Rigel Kent	-0.0	139°44.4'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.5'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.7'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	355°09.7'	181°15.8'	N 2°38.3'	141°58.1'	S 14°35.5'		28°26.8'	S 14°39.1'		45°08.7'	S 19°12.7'		174°15.1'	N 0°29.3'				
1	10°12.2'	196°16.0'	N 2°37.3'	156°57.9'	S 14°36.6'		43°29.5'	S 14°39.2'		60°11.3'	S 19°12.7'		189°16.1'	N 0°28.7'				
2	25°14.6'	211°16.2'	N 2°36.4'	171°57.6'	S 14°37.7'		58°32.2'	S 14°39.3'		75°13.8'	S 19°12.7'		204°17.1'	N 0°28.0'				
3	40°17.1'	226°16.5'	N 2°35.4'	186°57.4'	S 14°38.8'		73°34.9'	S 14°39.4'		90°16.4'	S 19°12.8'		219°18.1'	N 0°27.4'				
4	55°19.6'	241°16.7'	N 2°34.4'	201°57.1'	S 14°39.9'		88°37.6'	S 14°39.4'		105°19.0'	S 19°12.8'		234°19.1'	N 0°26.7'				
5	70°22.0'	256°16.9'	N 2°33.5'	216°56.8'	S 14°41.0'		103°40.3'	S 14°39.5'		120°21.5'	S 19°12.8'		249°20.1'	N 0°26.1'				
6	85°24.5'	271°17.1'	N 2°32.5'	231°56.6'	S 14°42.1'		118°43.0'	S 14°39.6'		135°24.1'	S 19°12.8'		264°21.1'	N 0°25.4'				
7	100°27.0'	286°17.4'	N 2°31.5'	246°56.3'	S 14°43.3'		133°45.7'	S 14°39.7'		150°26.7'	S 19°12.9'		279°22.0'	N 0°24.7'				
8	115°29.4'	301°17.6'	N 2°30.6'	261°56.0'	S 14°44.4'		148°48.4'	S 14°39.8'		165°29.2'	S 19°12.9'		294°23.0'	N 0°24.1'				
9	130°31.9'	316°17.8'	N 2°29.6'	276°55.8'	S 14°45.5'		163°51.1'	S 14°39.8'		180°31.8'	S 19°12.9'		309°24.0'	N 0°23.4'				
10	145°34.4'	331°18.0'	N 2°28.6'	291°55.5'	S 14°46.6'		178°53.8'	S 14°39.9'		195°34.3'	S 19°12.9'		324°25.0'	N 0°22.8'				
11	160°36.8'	346°18.3'	N 2°27.7'	306°55.2'	S 14°47.7'		193°56.5'	S 14°40.0'		210°36.9'	S 19°13.0'		339°26.0'	N 0°22.1'				
12	175°39.3'	1°18.5'	N 2°26.7'	321°55.0'	S 14°48.8'		208°59.2'	S 14°40.1'		225°39.5'	S 19°13.0'		354°27.0'	N 0°21.4'				
13	190°41.7'	16°18.7'	N 2°25.7'	336°54.7'	S 14°49.9'		224°01.9'	S 14°40.2'		240°42.0'	S 19°13.0'		9°28.0'	N 0°20.8'				
14	205°44.2'	31°18.9'	N 2°24.8'	351°54.4'	S 14°51.0'		239°04.6'	S 14°40.2'		255°44.6'	S 19°13.0'		24°29.0'	N 0°20.1'				
15	220°46.7'	46°19.1'	N 2°23.8'	6°54.2'	S 14°52.1'		254°07.3'	S 14°40.3'		270°47.2'	S 19°13.1'		39°29.9'	N 0°19.5'				
16	235°49.1'	61°19.4'	N 2°22.8'	21°53.9'	S 14°53.2'		269°10.0'	S 14°40.4'		285°49.7'	S 19°13.1'		54°30.9'	N 0°18.8'				
17	250°51.6'	76°19.6'	N 2°21.9'	36°53.6'	S 14°54.3'		284°12.7'	S 14°40.5'		300°52.3'	S 19°13.1'		69°31.9'	N 0°18.1'				
18	265°54.1'	91°19.8'	N 2°20.9'	51°53.4'	S 14°55.4'		299°15.4'	S 14°40.5'		315°54.9'	S 19°13.1'		84°32.9'	N 0°17.5'				
19	280°56.5'	106°20.0'	N 2°20.0'	66°53.1'	S 14°56.6'		314°18.1'	S 14°40.6'		330°57.4'	S 19°13.2'		99°33.9'	N 0°16.8'				
20	295°59.0'	121°20.3'	N 2°19.0'	81°52.8'	S 14°57.7'		329°20.8'	S 14°40.7'		345°60.0'	S 19°13.2'		114°34.9'	N 0°16.2'				
21	311°01.5'	136°20.5'	N 2°18.0'	96°52.6'	S 14°58.8'		344°23.5'	S 14°40.8'		1°02.5'	S 19°13.2'		129°35.9'	N 0°15.5'				
22	326°03.9'	151°20.7'	N 2°17.1'	111°52.3'	S 14°59.9'		359°26.2'	S 14°40.9'		16°05.1'	S 19°13.2'		144°36.9'	N 0°14.9'				
23	341°06.4'	166°20.9'	N 2°16.1'	126°52.0'	S 15°01.0'		14°28.9'	S 14°40.9'		31°07.7'	S 19°13.3'		159°37.8'	N 0°14.2'				
		SD 15.9' d -1.0'		v -0.3' d -1.1'			v 2.7' d -0.1'			v 2.6' d -0.0'			v 1.0' d -0.7'					
Mer. pass.		11 h 54 m 47 s		14 h 32 m			22 h 2 m			20 h 56 m			12 h 22 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Sun
0	61°40.2'	S 25°23.9'	5.4'	3.5'	58.5'	69°29.2'	45°16.8'	32°54.1'	16°28.5'	40°59.4'	59°54.1'	64°17.1'	117°44.1'
1	76°04.6'	S 25°20.4'	5.4'	3.7'	58.5'	69°12.1'	44°45.0'	32°19.5'	15°54.7'	41°33.8'	60°15.5'	64°38.6'	118°16.1'
2	90°29.0'	S 25°16.7'	5.5'	3.8'	58.4'	68°55.1'	44°13.2'	31°45.0'	15°21.1'	42°08.2'	60°37.1'	65°00.3'	118°48.1'
3	104°53.5'	S 25°12.9'	5.5'	4.0'	58.4'	68°38.2'	43°41.5'	31°10.4'	14°47.5'	42°42.6'	60°58.8'	65°22.1'	119°20.1'
4	119°18.0'	S 25°08.9'	5.6'	4.1'	58.4'	68°21.4'	43°09.9'	30°35.9'	14°14.0'	43°16.9'	61°20.5'	65°43.9'	119°52.0'
5	133°42.6'	S 25°04.8'	5.7'	4.3'	58.4'	68°04.7'	42°38.4'	30°01.5'	13°40.6'	43°51.3'	61°42.4'	66°05.8'	
6	148°07.3'	S 25°00.5'	5.7'	4.5'	58.4'	67°48.2'	42°06.9'	29°27.0'	13°07.3'	44°25.6'	62°04.4'	66°27.8'	
7	162°32.0'	S 24°56.1'	5.8'	4.6'	58.4'	67°31.7'	41°35.5'	28°52.6'	12°34.2'	44°59.9'	62°26.5'	66°49.9'	
8	176°56.8'	S 24°51.4'	5.9'	4.8'	58.4'	67°15.4'	41°04.2'	28°18.2'	12°01.2'	45°34.3'	62°48.7'	67°12.1'	
9	191°21.6'	S 24°46.7'	5.9'	4.9'	58.3'	66°59.2'	40°33.0'	27°43.8'	11°28.4'	46°08.6'	63°11.0'	67°34.3'	
10	205°46.5'	S 24°41.8'	6.0'	5.1'	58.3'	66°43.1'	40°01.8'	27°09.4'	10°55.8'	46°42.8'	63°33.4'	67°56.6'	
11	220°11.5'	S 24°36.7'	6.1'	5.2'	58.3'	66°27.2'	39°30.8'	26°35.1'	10°23.4'	47°17.1'	63°55.8'	68°19.0'	
12	234°36.6'	S 24°31.5'	6.1'	5.4'	58.3'	66°11.3'	38°59.9'	26°00.9'	9°51.2'	47°51.4'	64°18.4'	68°41.5'	
13	249°01.7'	S 24°26.1'	6.2'	5.5'	58.3'	65°55.6'	38°29.0'	25°26.6'	9°19.4'	48°25.6'	64°41.0'	69°04.0'	
14	263°26.9'	S 24°20.6'	6.3'	5.7'	58.3'	65°40.0'	37°58.3'	24°52.4'	8°47.9'	48°59.9'	65°03.7'	69°26.5'	
15	277°52.2'	S 24°14.9'	6.3'	5.8'	58.2'	65°24.6'	37°27.6'	24°18.2'	8°16.8'	49°34.1'	65°26.5'	69°49.2'	
16	292°17.5'	S 24°09.1'	6.4'	6.0'	58.2'	65°09.3'	36°57.1'	23°44.1'	7°46.2'	50°08.3'	65°49.4'	70°11.9'	
17	306°42.9'	S 24°03.1'	6.5'	6.1'	58.2'	64°54.1'	36°26.7'	23°10.0'	7°16.1'	50°42.5'	66°12.3'	70°34.7'	
18	321°08.4'	S 23°57.0'	6.6'	6.3'	58.2'		35°56.4'	22°35.9'		51°16.7'	66°35.3'	70°57.5'	
19	335°34.0'	S 23°50.7'	6.7'	6.4'	58.2'		35°26.2'	22°01.9'		51°50.8'	66°58.4'	71°20.3'	
20	349°59.6'	S 23°44.3'	6.7'	6.5'	58.2'		34°56.1'	21°27.9'		52°25.0'	67°21.5'	71°43.3'	
21	4°25.4'	S 23°37.8'	6.8'	6.7'	58.1'		34°26.2'	20°54.0'		52°59.1'	67°44.8'	72°06.2'	
22	18°51.2'	S 23°31.1'	6.9'	6.8'	58.1'		33°56.4'	20°20.1'		53°33.2'	68°08.0'	72°29.3'	
23	33°17.1'	S 23°24.3'	7.0'	7.0'	58.1'		33°26.7'	19°46.2'		54°07.3'	68°31.4'	72°52.3'	
Mer. pass.		20 h 42 m SD 15.9'		phase 73%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.1'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.5'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.7'	N 16°33.1'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	315°00.3'	N 89°21.0'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				



h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	356°08.9'	181°21.2'	N 2°15.1'	141°51.8'	S 15°02.1'		29°31.6'	S 14°41.0'		46°10.2'	S 19°13.3'		174°38.8'	N 0°13.5'				
1	11°11.3'	196°21.4'	N 2°14.2'	156°51.5'	S 15°03.2'		44°34.3'	S 14°41.1'		61°12.8'	S 19°13.3'		189°39.8'	N 0°12.9'				
2	26°13.8'	211°21.6'	N 2°13.2'	171°51.2'	S 15°04.3'		59°37.0'	S 14°41.2'		76°15.3'	S 19°13.3'		204°40.8'	N 0°12.2'				
3	41°16.2'	226°21.8'	N 2°12.2'	186°50.9'	S 15°05.4'		74°39.6'	S 14°41.2'		91°17.9'	S 19°13.4'		219°41.8'	N 0°11.6'				
4	56°18.7'	241°22.1'	N 2°11.3'	201°50.7'	S 15°06.5'		89°42.3'	S 14°41.3'		106°20.5'	S 19°13.4'		234°42.8'	N 0°10.9'				
5	71°21.2'	256°22.3'	N 2°10.3'	216°50.4'	S 15°07.6'		104°45.0'	S 14°41.4'		121°23.0'	S 19°13.4'		249°43.8'	N 0°10.2'				
6	86°23.6'	271°22.5'	N 2°09.3'	231°50.1'	S 15°08.7'		119°47.7'	S 14°41.5'		136°25.6'	S 19°13.4'		264°44.7'	N 0°09.6'				
7	101°26.1'	286°22.7'	N 2°08.4'	246°49.9'	S 15°09.8'		134°50.4'	S 14°41.5'		151°28.2'	S 19°13.5'		279°45.7'	N 0°08.9'				
8	116°28.6'	301°23.0'	N 2°07.4'	261°49.6'	S 15°10.9'		149°53.1'	S 14°41.6'		166°30.7'	S 19°13.5'		294°46.7'	N 0°08.3'				
9	131°31.0'	316°23.2'	N 2°06.4'	276°49.3'	S 15°12.0'		164°55.8'	S 14°41.7'		181°33.3'	S 19°13.5'		309°47.7'	N 0°07.6'				
10	146°33.5'	331°23.4'	N 2°05.5'	291°49.0'	S 15°13.1'		179°58.5'	S 14°41.8'		196°35.8'	S 19°13.5'		324°48.7'	N 0°06.9'				
11	161°36.0'	346°23.6'	N 2°04.5'	306°48.8'	S 15°14.1'		195°01.2'	S 14°41.9'		211°38.4'	S 19°13.6'		339°49.7'	N 0°06.3'				
12	176°38.4'	1°23.9'	N 2°03.5'	321°48.5'	S 15°15.2'		210°03.9'	S 14°41.9'		226°41.0'	S 19°13.6'		354°50.7'	N 0°05.6'				
13	191°40.9'	16°24.1'	N 2°02.6'	336°48.2'	S 15°16.3'		225°06.6'	S 14°42.0'		241°43.5'	S 19°13.6'		9°51.7'	N 0°05.0'				
14	206°43.4'	31°24.3'	N 2°01.6'	351°48.0'	S 15°17.4'		240°09.3'	S 14°42.1'		256°46.1'	S 19°13.6'		24°52.6'	N 0°04.3'				
15	221°45.8'	46°24.5'	N 2°00.6'	6°47.7'	S 15°18.5'		255°12.0'	S 14°42.2'		271°48.6'	S 19°13.7'		39°53.6'	N 0°03.7'				
16	236°48.3'	61°24.7'	N 1°59.7'	21°47.4'	S 15°19.6'		270°14.7'	S 14°42.2'		286°51.2'	S 19°13.7'		54°54.6'	N 0°03.0'				
17	251°50.7'	76°25.0'	N 1°58.7'	36°47.1'	S 15°20.7'		285°17.4'	S 14°42.3'		301°53.8'	S 19°13.7'		69°55.6'	N 0°02.3'				
18	266°53.2'	91°25.2'	N 1°57.7'	51°46.9'	S 15°21.8'		300°20.1'	S 14°42.4'		316°56.3'	S 19°13.7'		84°56.6'	N 0°01.7'				
19	281°55.7'	106°25.4'	N 1°56.8'	66°46.6'	S 15°22.9'		315°22.8'	S 14°42.5'		331°58.9'	S 19°13.8'		99°57.6'	N 0°01.0'				
20	296°58.1'	121°25.6'	N 1°55.8'	81°46.3'	S 15°24.0'		330°25.5'	S 14°42.5'		347°01.4'	S 19°13.8'		114°58.6'	N 0°00.4'				
21	312°00.6'	136°25.9'	N 1°54.8'	96°46.0'	S 15°25.1'		345°28.1'	S 14°42.6'		2°04.0'	S 19°13.8'		129°59.5'	S 0°00.3'				
22	327°03.1'	151°26.1'	N 1°53.9'	111°45.8'	S 15°26.2'		0°30.8'	S 14°42.7'		17°06.5'	S 19°13.8'		145°00.5'	S 0°01.0'				
23	342°05.5'	166°26.3'	N 1°52.9'	126°45.5'	S 15°27.3'		15°33.5'	S 14°42.8'		32°09.1'	S 19°13.9'		160°01.5'	S 0°01.6'				
		SD 15.9'	d -1.0'		v -0.3'	d -1.1'		v 2.7'	d -0.1'		v 2.6'	d -0.0'		v 1.0'	d -0.7'			
Mer. pass.		11 h 54 m 26 s		14 h 33 m			21 h 58 m			20 h 52 m			12 h 21 m					

h	Moon					Lunar distance												
	GHA	dec	v	d	HP	-Rigel	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+AcruX					
0	47°43.0'	S 23°17.3'	7.1'	7.1'	58.1'			32°57.2'	19°12.5'		54°41.4'	68°54.8'	73°15.5'	82°08.5'				
1	62°09.1'	S 23°10.2'	7.1'	7.2'	58.1'			32°27.9'	18°38.7'		55°15.5'	69°18.2'	73°38.6'	82°27.9'				
2	76°35.2'	S 23°03.0'	7.2'	7.4'	58.1'			31°58.7'	18°05.1'		55°49.5'	69°41.8'	74°01.8'	82°47.4'				
3	91°01.5'	S 22°55.6'	7.3'	7.5'	58.0'			31°29.6'	17°31.5'		56°23.6'	70°05.3'	74°25.1'	83°06.9'				
4	105°27.8'	S 22°48.1'	7.4'	7.6'	58.0'			31°00.8'	16°57.9'		56°57.6'	70°28.9'	74°48.4'	83°26.5'				
5	119°54.2'	S 22°40.5'	7.5'	7.8'	58.0'			30°32.1'	16°24.5'		57°31.6'	70°52.6'	75°11.7'	83°46.0'				
6	134°20.7'	S 22°32.7'	7.6'	7.9'	58.0'	119°34.9'		30°03.6'	15°51.1'		58°05.6'	71°16.3'	75°35.0'	84°05.6'				
7	148°47.2'	S 22°24.8'	7.7'	8.0'	58.0'	119°07.8'		29°35.3'	15°17.8'		58°39.6'	71°40.1'	75°58.4'	84°25.2'				
8	163°13.9'	S 22°16.8'	7.7'	8.1'	58.0'	118°40.8'		29°07.2'	14°44.6'		59°13.5'	72°03.9'	76°21.8'	84°44.8'				
9	177°40.6'	S 22°08.6'	7.8'	8.3'	57.9'	118°13.6'		28°39.3'	14°11.5'		59°47.5'	72°27.8'	76°45.3'	85°04.4'				
10	192°07.5'	S 22°00.4'	7.9'	8.4'	57.9'	117°46.4'		28°11.6'	13°38.5'		60°21.4'	72°51.7'	77°08.8'	85°24.0'				
11	206°34.4'	S 21°52.0'	8.0'	8.5'	57.9'	117°19.2'		27°44.1'	13°05.7'		60°55.3'	73°15.6'	77°32.3'	85°43.6'				
12	221°01.4'	S 21°43.5'	8.1'	8.6'	57.9'	116°51.9'		27°17.0'	12°33.0'		61°29.2'	73°39.6'	77°55.8'	86°03.2'				
13	235°28.5'	S 21°34.8'	8.2'	8.8'	57.9'	116°24.6'		26°50.0'	12°00.4'		62°03.1'	74°03.6'	78°19.4'	86°22.8'				
14	249°55.7'	S 21°26.0'	8.3'	8.9'	57.8'	115°57.2'		26°23.3'	11°28.1'		62°36.9'	74°27.6'	78°43.0'	86°42.5'				
15	264°23.0'	S 21°17.2'	8.4'	9.0'	57.8'	115°29.8'		25°56.9'	10°55.9'	7°15.9'	63°10.8'	74°51.7'	79°06.6'	87°02.1'				
16	278°50.4'	S 21°08.2'	8.5'	9.1'	57.8'	115°02.3'		25°30.8'	10°24.0'	7°45.5'	63°44.6'	75°15.8'	79°30.2'	87°21.8'				
17	293°17.8'	S 20°59.1'	8.6'	9.2'	57.8'	114°34.8'		25°05.0'	9°52.3'	8°15.7'	64°18.4'	75°40.0'	79°53.9'	87°41.4'				
18	307°45.4'	S 20°49.8'	8.6'	9.3'	57.8'	114°07.3'		24°39.5'	9°20.9'	8°46.4'	64°52.2'	76°04.2'	80°17.5'	88°01.0'				
19	322°13.0'	S 20°40.5'	8.7'	9.4'	57.8'	113°39.7'		24°14.4'	8°49.9'	9°17.4'	65°25.9'	76°28.4'	80°41.2'	88°20.7'				
20	336°40.8'	S 20°31.1'	8.8'	9.6'	57.7'	113°12.1'		23°49.6'	8°19.3'	9°48.7'	65°59.7'	76°52.6'	81°04.9'	88°40.3'				
21	351°08.6'	S 20°21.5'	8.9'	9.7'	57.7'	112°44.5'		23°25.2'	7°49.2'	10°20.3'	66°33.4'	77°16.8'	81°28.6'	88°59.9'				
22	5°36.5'	S 20°11.8'	9.0'	9.8'	57.7'	112°16.8'		23°01.1'	7°19.6'	10°52.0'	67°07.1'	77°41.1'	81°52.3'	89°19.5'				
23	20°04.5'	S 20°02.1'	9.1'	9.9'	57.7'	111°49.2'		22°37.5'		11°24.0'	67°40.8'	78°05.4'	82°16.1'	89°39.1'				
Mer. pass.		21 h 37 m SD 15.8'		phase 82%														

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	AcruX	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.9'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°34.9'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.1'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°59.9'	N 89°21.0'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	357°08.0'	181°26.5' N 1°51.9'	141°45.2' S 15°28.3'	30°36.2' S 14°42.8'	47°11.7' S 19°13.9'	175°02.5' S 0°02.3'						
1	12°10.5'	196°26.8' N 1°51.0'	156°44.9' S 15°29.4'	45°38.9' S 14°42.9'	62°14.2' S 19°13.9'	190°03.5' S 0°02.9'						
2	27°12.9'	211°27.0' N 1°50.0'	171°44.7' S 15°30.5'	60°41.6' S 14°43.0'	77°16.8' S 19°13.9'	205°04.5' S 0°03.6'						
3	42°15.4'	226°27.2' N 1°49.0'	186°44.4' S 15°31.6'	75°44.3' S 14°43.1'	92°19.3' S 19°14.0'	220°05.5' S 0°04.3'						
4	57°17.8'	241°27.4' N 1°48.1'	201°44.1' S 15°32.7'	90°47.0' S 14°43.1'	107°21.9' S 19°14.0'	235°06.4' S 0°04.9'						
5	72°20.3'	256°27.7' N 1°47.1'	216°43.8' S 15°33.8'	105°49.7' S 14°43.2'	122°24.5' S 19°14.0'	250°07.4' S 0°05.6'						
6	87°22.8'	271°27.9' N 1°46.1'	231°43.6' S 15°34.9'	120°52.4' S 14°43.3'	137°27.0' S 19°14.0'	265°08.4' S 0°06.2'						
7	102°25.2'	286°28.1' N 1°45.2'	246°43.3' S 15°35.9'	135°55.1' S 14°43.4'	152°29.6' S 19°14.1'	280°09.4' S 0°06.9'						
8	117°27.7'	301°28.3' N 1°44.2'	261°43.0' S 15°37.0'	150°57.7' S 14°43.4'	167°32.1' S 19°14.1'	295°10.4' S 0°07.6'						
9	132°30.2'	316°28.6' N 1°43.2'	276°42.7' S 15°38.1'	166°00.4' S 14°43.5'	182°34.7' S 19°14.1'	310°11.4' S 0°08.2'						
10	147°32.6'	331°28.8' N 1°42.3'	291°42.4' S 15°39.2'	181°03.1' S 14°43.6'	197°37.2' S 19°14.1'	325°12.4' S 0°08.9'						
11	162°35.1'	346°29.0' N 1°41.3'	306°42.2' S 15°40.3'	196°05.8' S 14°43.7'	212°39.8' S 19°14.2'	340°13.3' S 0°09.5'						
12	177°37.6'	1°29.2' N 1°40.3'	321°41.9' S 15°41.4'	211°08.5' S 14°43.7'	227°42.3' S 19°14.2'	355°14.3' S 0°10.2'						
13	192°40.0'	16°29.4' N 1°39.3'	336°41.6' S 15°42.4'	226°11.2' S 14°43.8'	242°44.9' S 19°14.2'	10°15.3' S 0°10.9'						
14	207°42.5'	31°29.7' N 1°38.4'	351°41.3' S 15°43.5'	241°13.9' S 14°43.9'	257°47.5' S 19°14.2'	25°16.3' S 0°11.5'						
15	222°45.0'	46°29.9' N 1°37.4'	6°41.0' S 15°44.6'	256°16.6' S 14°44.0'	272°50.0' S 19°14.2'	40°17.3' S 0°12.2'						
16	237°47.4'	61°30.1' N 1°36.4'	21°40.8' S 15°45.7'	271°19.2' S 14°44.0'	287°52.6' S 19°14.3'	55°18.3' S 0°12.8'						
17	252°49.9'	76°30.3' N 1°35.5'	36°40.5' S 15°46.8'	286°21.9' S 14°44.1'	302°55.1' S 19°14.3'	70°19.3' S 0°13.5'						
18	267°52.3'	91°30.6' N 1°34.5'	51°40.2' S 15°47.8'	301°24.6' S 14°44.2'	317°57.7' S 19°14.3'	85°20.2' S 0°14.1'						
19	282°54.8'	106°30.8' N 1°33.5'	66°39.9' S 15°48.9'	316°27.3' S 14°44.3'	333°00.2' S 19°14.3'	100°21.2' S 0°14.8'						
20	297°57.3'	121°31.0' N 1°32.6'	81°39.6' S 15°50.0'	331°30.0' S 14°44.3'	348°02.8' S 19°14.4'	115°22.2' S 0°15.5'						
21	312°59.7'	136°31.2' N 1°31.6'	96°39.4' S 15°51.1'	346°32.7' S 14°44.4'	3°05.3' S 19°14.4'	130°23.2' S 0°16.1'						
22	328°02.2'	151°31.5' N 1°30.6'	111°39.1' S 15°52.1'	1°35.4' S 14°44.5'	18°07.9' S 19°14.4'	145°24.2' S 0°16.8'						
23	343°04.7'	166°31.7' N 1°29.7'	126°38.8' S 15°53.2'	16°38.1' S 14°44.5'	33°10.5' S 19°14.4'	160°25.2' S 0°17.4'						
		SD 15.9' d -1.0'	v -0.3' d -1.1'	v 2.7' d -0.1'	v 2.6' d -0.0'	v 1.0' d -0.7'						
Mer. pass.		11 h 54 m 4 s	14 h 33 m	21 h 54 m	20 h 48 m	12 h 19 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent
0	34°32.6'	S 19°52.2'	9.2'	10.0'	57.7'	111°21.4'	110°50.9'	22°14.3'		11°56.1'		68°14.5'	78°29.7'
1	49°00.8'	S 19°42.2'	9.3'	10.1'	57.6'	110°53.7'	110°17.3'	21°51.5'		12°28.4'		68°48.2'	78°54.0'
2	63°29.1'	S 19°32.1'	9.4'	10.2'	57.6'	110°25.9'	109°43.8'	21°29.2'		13°00.8'	38°08.3'	69°21.8'	79°18.4'
3	77°57.5'	S 19°21.9'	9.5'	10.3'	57.6'	109°58.1'	109°10.3'	21°07.5'		13°33.2'	38°23.5'	69°55.4'	79°42.7'
4	92°26.0'	S 19°11.6'	9.6'	10.4'	57.6'	109°30.3'	108°36.8'	20°46.2'		14°05.8'	38°39.1'	70°29.0'	80°07.1'
5	106°54.5'	S 19°01.2'	9.7'	10.5'	57.6'	109°02.5'	108°03.3'	20°25.5'		14°38.4'	38°55.0'	71°02.6'	80°31.5'
6	121°23.2'	S 18°50.8'	9.7'	10.6'	57.5'	108°34.6'	107°29.9'	20°05.3'		15°11.1'	39°11.2'	71°36.2'	80°55.9'
7	135°51.9'	S 18°40.2'	9.8'	10.7'	57.5'	108°06.8'	106°56.4'	19°45.7'		15°43.8'	39°27.7'	72°09.7'	81°20.3'
8	150°20.8'	S 18°29.5'	9.9'	10.8'	57.5'	107°38.9'	106°23.0'	19°26.8'		16°16.6'	39°44.4'	72°43.2'	81°44.8'
9	164°49.7'	S 18°18.8'	10.0'	10.9'	57.5'	107°11.0'	105°49.6'	19°08.6'		16°49.4'	40°01.5'	73°16.7'	82°09.2'
10	179°18.7'	S 18°07.9'	10.1'	10.9'	57.5'	106°43.1'	105°16.2'	18°51.0'		17°22.3'	40°18.8'	73°50.2'	82°33.6'
11	193°47.8'	S 17°57.0'	10.2'	11.0'	57.4'	106°15.1'	104°42.9'	18°34.1'		17°55.1'	40°36.4'	74°23.7'	82°58.1'
12	208°17.0'	S 17°45.9'	10.3'	11.1'	57.4'	105°47.2'	104°09.5'	18°18.0'		18°28.1'	40°54.3'	74°57.1'	83°22.5'
13	222°46.3'	S 17°34.8'	10.4'	11.2'	57.4'	105°19.2'	103°36.2'			19°01.0'	41°12.5'	75°30.5'	83°47.0'
14	237°15.7'	S 17°23.6'	10.5'	11.3'	57.4'	104°51.3'	103°02.9'			19°33.9'	41°30.8'	76°03.9'	84°11.4'
15	251°45.1'	S 17°12.3'	10.6'	11.4'	57.4'	104°23.3'	102°29.6'			20°06.9'	41°49.5'	76°37.3'	84°35.9'
16	266°14.7'	S 17°00.9'	10.6'	11.5'	57.3'	103°55.3'	101°56.4'			20°39.8'	42°08.3'	77°10.7'	85°00.3'
17	280°44.3'	S 16°49.5'	10.7'	11.5'	57.3'	103°27.4'	101°23.1'			21°12.8'	42°27.4'	77°44.0'	85°24.8'
18	295°14.1'	S 16°38.0'	10.8'	11.6'	57.3'	102°59.4'	100°49.9'			21°45.8'	42°46.7'	78°17.3'	85°49.2'
19	309°43.9'	S 16°26.4'	10.9'	11.7'	57.3'	102°31.4'	100°16.7'			22°18.8'	43°06.3'	78°50.6'	86°13.7'
20	324°13.8'	S 16°14.7'	11.0'	11.8'	57.3'	102°03.4'	99°43.5'		7°09.9'	22°51.8'	43°26.0'	79°23.9'	86°38.1'
21	338°43.8'	S 16°02.9'	11.1'	11.8'	57.2'	101°35.4'	99°10.4'		7°38.8'	23°24.7'	43°46.0'	79°57.2'	87°02.5'
22	353°13.8'	S 15°51.1'	11.2'	11.9'	57.2'	101°07.4'	98°37.2'		8°08.3'	23°57.7'	44°06.1'	80°30.4'	87°26.9'
23	7°44.0'	S 15°39.2'	11.2'	12.0'	57.2'	100°39.4'	98°04.1'		8°38.2'	24°30.7'	44°26.5'	81°03.6'	87°51.4'
Mer. pass.		22 h 28 m SD 15.7'	phase 90%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.1'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°59.5'	N 89°21.0'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars			
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec		
0	358°07.1'	181°31.9'	N 1°28.7'	141°38.5'	S 15°54.3'		31°40.7'	S 14°44.6'		48°13.0'	S 19°14.5'		175°26.1'	S 0°18.1'					
1	13°09.6'	196°32.1'	N 1°27.7'	156°38.2'	S 15°55.4'		46°43.4'	S 14°44.7'		63°15.6'	S 19°14.5'		190°27.1'	S 0°18.8'					
2	28°12.1'	211°32.4'	N 1°26.8'	171°37.9'	S 15°56.4'		61°46.1'	S 14°44.8'		78°18.1'	S 19°14.5'		205°28.1'	S 0°19.4'					
3	43°14.5'	226°32.6'	N 1°25.8'	186°37.7'	S 15°57.5'		76°48.8'	S 14°44.8'		93°20.7'	S 19°14.5'		220°29.1'	S 0°20.1'					
4	58°17.0'	241°32.8'	N 1°24.8'	201°37.4'	S 15°58.6'		91°51.5'	S 14°44.9'		108°23.2'	S 19°14.5'		235°30.1'	S 0°20.7'					
5	73°19.5'	256°33.0'	N 1°23.8'	216°37.1'	S 15°59.7'		106°54.2'	S 14°45.0'		123°25.8'	S 19°14.6'		250°31.1'	S 0°21.4'					
6	88°21.9'	271°33.3'	N 1°22.9'	231°36.8'	S 16°00.7'		121°56.8'	S 14°45.1'		138°28.3'	S 19°14.6'		265°32.1'	S 0°22.1'					
7	103°24.4'	286°33.5'	N 1°21.9'	246°36.5'	S 16°01.8'		136°59.5'	S 14°45.1'		153°30.9'	S 19°14.6'		280°33.0'	S 0°22.7'					
8	118°26.8'	301°33.7'	N 1°20.9'	261°36.2'	S 16°02.9'		152°02.2'	S 14°45.2'		168°33.4'	S 19°14.6'		295°34.0'	S 0°23.4'					
9	133°29.3'	316°33.9'	N 1°20.0'	276°36.0'	S 16°03.9'		167°04.9'	S 14°45.3'		183°36.0'	S 19°14.7'		310°35.0'	S 0°24.0'					
10	148°31.8'	331°34.1'	N 1°19.0'	291°35.7'	S 16°05.0'		182°07.6'	S 14°45.3'		198°38.6'	S 19°14.7'		325°36.0'	S 0°24.7'					
11	163°34.2'	346°34.4'	N 1°18.0'	306°35.4'	S 16°06.1'		197°10.3'	S 14°45.4'		213°41.1'	S 19°14.7'		340°37.0'	S 0°25.4'					
12	178°36.7'	1°34.6'	N 1°17.1'	321°35.1'	S 16°07.1'		212°12.9'	S 14°45.5'		228°43.7'	S 19°14.7'		355°38.0'	S 0°26.0'					
13	193°39.2'	16°34.8'	N 1°16.1'	336°34.8'	S 16°08.2'		227°15.6'	S 14°45.6'		243°46.2'	S 19°14.8'		10°38.9'	S 0°26.7'					
14	208°41.6'	31°35.0'	N 1°15.1'	351°34.5'	S 16°09.3'		242°18.3'	S 14°45.6'		258°48.8'	S 19°14.8'		25°39.9'	S 0°27.3'					
15	223°44.1'	46°35.3'	N 1°14.2'	6°34.3'	S 16°10.3'		257°21.0'	S 14°45.7'		273°51.3'	S 19°14.8'		40°40.9'	S 0°28.0'					
16	238°46.6'	61°35.5'	N 1°13.2'	21°34.0'	S 16°11.4'		272°23.7'	S 14°45.8'		288°53.9'	S 19°14.8'		55°41.9'	S 0°28.7'					
17	253°49.0'	76°35.7'	N 1°12.2'	36°33.7'	S 16°12.5'		287°26.3'	S 14°45.8'		303°56.4'	S 19°14.8'		70°42.9'	S 0°29.3'					
18	268°51.5'	91°35.9'	N 1°11.2'	51°33.4'	S 16°13.5'		302°29.0'	S 14°45.9'		318°59.0'	S 19°14.9'		85°43.9'	S 0°30.0'					
19	283°53.9'	106°36.2'	N 1°10.3'	66°33.1'	S 16°14.6'		317°31.7'	S 14°46.0'		334°01.5'	S 19°14.9'		100°44.8'	S 0°30.6'					
20	298°56.4'	121°36.4'	N 1°09.3'	81°32.8'	S 16°15.7'		332°34.4'	S 14°46.1'		349°04.1'	S 19°14.9'		115°45.8'	S 0°31.3'					
21	313°58.9'	136°36.6'	N 1°08.3'	96°32.5'	S 16°16.7'		347°37.1'	S 14°46.1'		4°06.6'	S 19°14.9'		130°46.8'	S 0°32.0'					
22	329°01.3'	151°36.8'	N 1°07.4'	111°32.2'	S 16°17.8'		2°39.7'	S 14°46.2'		19°09.2'	S 19°15.0'		145°47.8'	S 0°32.6'					
23	344°03.8'	166°37.1'	N 1°06.4'	126°32.0'	S 16°18.8'		17°42.4'	S 14°46.3'		34°11.7'	S 19°15.0'		160°48.8'	S 0°33.3'					
		SD 15.9'	d -1.0'		v -0.3'	d -1.1'		v 2.7'	d -0.1'		v 2.6'	d -0.0'		v 1.8'	d -0.7'				
Mer. pass.		11 h 53 m 43 s			14 h 34 m			21 h 49 m			20 h 44 m			12 h 17 m					

h	Moon						Lunar distance							
	GHA	dec	v	d	HP		-Capella	-Rigel	-Aldebaran	-Fomalhaut	+Jupiter	+Saturn	+Altair	+Antares
0	22°14.2'	S 15°27.2'	11.3'	12.0'	57.2'		110°29.6'	100°11.4'	97°31.0'		9°08.6'	25°03.7'	44°47.1'	81°36.8'
1	36°44.5'	S 15°15.1'	11.4'	12.1'	57.2'		109°59.0'	99°43.4'	96°58.0'		9°39.2'	25°36.6'	45°07.8'	82°10.0'
2	51°15.0'	S 15°03.0'	11.5'	12.2'	57.1'		109°28.3'	99°15.4'	96°24.9'		10°10.2'	26°09.6'	45°28.7'	82°43.1'
3	65°45.4'	S 14°50.8'	11.6'	12.3'	57.1'		108°57.6'	98°47.4'	95°51.9'		10°41.3'	26°42.5'	45°49.8'	83°16.2'
4	80°16.0'	S 14°38.6'	11.7'	12.3'	57.1'		108°26.9'	98°19.4'	95°18.9'		11°12.7'	27°15.5'	46°11.1'	83°49.3'
5	94°46.7'	S 14°26.3'	11.7'	12.4'	57.1'		107°56.3'	97°51.4'	94°45.9'		11°44.2'	27°48.4'	46°32.5'	84°22.4'
6	109°17.4'	S 14°13.9'	11.8'	12.4'	57.1'		107°25.6'	97°23.5'	94°12.9'		12°15.9'	28°21.3'	46°54.1'	84°55.5'
7	123°48.2'	S 14°01.4'	11.9'	12.5'	57.0'		106°55.0'	96°55.5'	93°40.0'		12°47.6'	28°54.2'	47°15.8'	85°28.5'
8	138°19.1'	S 13°48.9'	12.0'	12.6'	57.0'		106°24.3'	96°27.5'	93°07.1'		13°19.5'	29°27.1'	47°37.7'	86°01.5'
9	152°50.1'	S 13°36.4'	12.0'	12.6'	57.0'		105°53.7'	95°59.6'	92°34.2'		13°51.5'	30°00.0'	47°59.7'	86°34.5'
10	167°21.1'	S 13°23.8'	12.1'	12.7'	57.0'		105°23.1'	95°31.7'	92°01.3'		14°23.5'	30°32.9'	48°21.9'	87°07.5'
11	181°52.2'	S 13°11.1'	12.2'	12.7'	57.0'		104°52.5'	95°03.7'	91°28.5'		14°55.7'	31°05.7'	48°44.2'	87°40.4'
12	196°23.4'	S 12°58.4'	12.3'	12.8'	56.9'		104°21.8'	94°35.8'	90°55.6'		15°27.8'	31°38.6'	49°06.7'	88°13.4'
13	210°54.7'	S 12°45.6'	12.3'	12.8'	56.9'		103°51.2'	94°07.9'	90°22.8'		16°00.1'	32°11.4'	49°29.3'	88°46.3'
14	225°26.1'	S 12°32.8'	12.4'	12.9'	56.9'		103°20.7'	93°40.0'	89°50.0'		16°32.3'	32°44.2'	49°52.0'	89°19.1'
15	239°57.5'	S 12°19.9'	12.5'	12.9'	56.9'		102°50.1'	93°12.1'	89°17.3'		17°04.6'	33°17.0'	50°14.8'	89°52.0'
16	254°29.0'	S 12°06.9'	12.6'	13.0'	56.9'		102°19.5'	92°44.3'	88°44.6'		17°36.9'	33°49.8'	50°37.8'	90°24.8'
17	269°00.5'	S 11°54.0'	12.6'	13.0'	56.8'		101°49.0'	92°16.4'	88°11.8'		18°09.3'	34°22.6'	51°00.9'	90°57.6'
18	283°32.2'	S 11°40.9'	12.7'	13.1'	56.8'		101°18.4'	91°48.6'	87°39.1'		18°41.6'	34°55.3'	51°24.1'	91°30.4'
19	298°03.9'	S 11°27.9'	12.8'	13.1'	56.8'		100°47.9'	91°20.8'	87°06.5'	18°04.4'	19°14.0'	35°28.0'	51°47.3'	92°03.2'
20	312°35.7'	S 11°14.7'	12.8'	13.2'	56.8'		100°17.4'	90°53.0'	86°33.8'	18°19.5'	19°46.4'	36°00.7'	52°10.7'	92°35.9'
21	327°07.5'	S 11°01.6'	12.9'	13.2'	56.7'		99°46.9'	90°25.2'	86°01.2'	18°35.3'	20°18.8'	36°33.4'	52°34.2'	93°08.6'
22	341°39.4'	S 10°48.4'	13.0'	13.2'	56.7'		99°16.4'	89°57.5'	85°28.6'	18°51.8'	20°51.2'	37°06.1'	52°57.8'	93°41.3'
23	356°11.4'	S 10°35.1'	13.0'	13.3'	56.7'		98°45.9'	89°29.7'	84°56.1'	19°09.0'	21°23.7'	37°38.7'	53°21.5'	94°14.0'
Mer. pass.		23 h 16 m SD 15.6'			phase 95%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°59.1'	N 89°21.0'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	359°08.3'	181°37.3'	N 1°05.4'	141°31.7'	S 16°19.9'		32°45.1'	S 14°46.3'		49°14.3'	S 19°15.0'		175°49.8'	S 0°33.9'				
1	14°06.7'	196°37.5'	N 1°04.5'	156°31.4'	S 16°21.0'		47°47.8'	S 14°46.4'		64°16.8'	S 19°15.0'		190°50.7'	S 0°34.6'				
2	29°11.2'	211°37.7'	N 1°03.5'	171°31.1'	S 16°22.0'		62°50.5'	S 14°46.5'		79°19.4'	S 19°15.0'		205°51.7'	S 0°35.3'				
3	44°13.7'	226°37.9'	N 1°02.5'	186°30.8'	S 16°23.1'		77°53.1'	S 14°46.6'		94°21.9'	S 19°15.1'		220°52.7'	S 0°35.9'				
4	59°16.1'	241°38.2'	N 1°01.5'	201°30.5'	S 16°24.1'		92°55.8'	S 14°46.6'		109°24.5'	S 19°15.1'		235°53.7'	S 0°36.6'				
5	74°18.6'	256°38.4'	N 1°00.6'	216°30.2'	S 16°25.2'		107°58.5'	S 14°46.7'		124°27.0'	S 19°15.1'		250°54.7'	S 0°37.2'				
6	89°21.1'	271°38.6'	N 0°59.6'	231°29.9'	S 16°26.2'		123°01.2'	S 14°46.8'		139°29.6'	S 19°15.1'		265°55.7'	S 0°37.9'				
7	104°23.5'	286°38.8'	N 0°58.6'	246°29.6'	S 16°27.3'		138°03.9'	S 14°46.8'		154°32.1'	S 19°15.2'		280°56.6'	S 0°38.6'				
8	119°26.0'	301°39.1'	N 0°57.7'	261°29.3'	S 16°28.4'		153°06.5'	S 14°46.9'		169°34.7'	S 19°15.2'		295°57.6'	S 0°39.2'				
9	134°28.4'	316°39.3'	N 0°56.7'	276°29.1'	S 16°29.4'		168°09.2'	S 14°47.0'		184°37.2'	S 19°15.2'		310°58.6'	S 0°39.9'				
10	149°30.9'	331°39.5'	N 0°55.7'	291°28.8'	S 16°30.5'		183°11.9'	S 14°47.0'		199°39.8'	S 19°15.2'		325°59.6'	S 0°40.5'				
11	164°33.4'	346°39.7'	N 0°54.7'	306°28.5'	S 16°31.5'		198°14.6'	S 14°47.1'		214°42.3'	S 19°15.2'		341°00.6'	S 0°41.2'				
12	179°35.8'	1°40.0'	N 0°53.8'	321°28.2'	S 16°32.6'		213°17.2'	S 14°47.2'		229°44.9'	S 19°15.3'		356°01.6'	S 0°41.8'				
13	194°38.3'	16°40.2'	N 0°52.8'	336°27.9'	S 16°33.6'		228°19.9'	S 14°47.2'		244°47.4'	S 19°15.3'		11°02.5'	S 0°42.5'				
14	209°40.8'	31°40.4'	N 0°51.8'	351°27.6'	S 16°34.7'		243°22.6'	S 14°47.3'		259°50.0'	S 19°15.3'		26°03.5'	S 0°43.2'				
15	224°43.2'	46°40.6'	N 0°50.9'	6°27.3'	S 16°35.7'		258°25.3'	S 14°47.4'		274°52.5'	S 19°15.3'		41°04.5'	S 0°43.8'				
16	239°45.7'	61°40.8'	N 0°49.9'	21°27.0'	S 16°36.8'		273°27.9'	S 14°47.5'		289°55.1'	S 19°15.4'		56°05.5'	S 0°44.5'				
17	254°48.2'	76°41.1'	N 0°48.9'	36°26.7'	S 16°37.8'		288°30.6'	S 14°47.5'		304°57.6'	S 19°15.4'		71°06.5'	S 0°45.1'				
18	269°50.6'	91°41.3'	N 0°48.0'	51°26.4'	S 16°38.9'		303°33.3'	S 14°47.6'		320°00.2'	S 19°15.4'		86°07.4'	S 0°45.8'				
19	284°53.1'	106°41.5'	N 0°47.0'	66°26.1'	S 16°39.9'		318°36.0'	S 14°47.7'		335°02.7'	S 19°15.4'		101°08.4'	S 0°46.5'				
20	299°55.5'	121°41.7'	N 0°46.0'	81°25.8'	S 16°41.0'		333°38.6'	S 14°47.7'		350°05.3'	S 19°15.4'		116°09.4'	S 0°47.1'				
21	314°58.0'	136°42.0'	N 0°45.0'	96°25.5'	S 16°42.0'		348°41.3'	S 14°47.8'		5°07.8'	S 19°15.5'		131°10.4'	S 0°47.8'				
22	330°00.5'	151°42.2'	N 0°44.1'	111°25.2'	S 16°43.1'		3°44.0'	S 14°47.9'		20°10.4'	S 19°15.5'		146°11.4'	S 0°48.4'				
23	345°02.9'	166°42.4'	N 0°43.1'	126°24.9'	S 16°44.1'		18°46.7'	S 14°47.9'		35°12.9'	S 19°15.5'		161°12.4'	S 0°49.1'				
		SD 15.9'	d -1.0'		v -0.3'	d -1.1'		v 2.7'	d -0.1'		v 2.5'	d -0.0'		v 1.0'	d -0.7'			
Mer. pass.		11 h 53 m 21 s		14 h 34 m			21 h 45 m			20 h 40 m			12 h 16 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	10°43.5'	S 10°21.8'	13.1'	13.3'	56.7'	101°47.5'	98°15.5'	89°02.0'	84°23.5'	19°26.8'	21°56.1'	38°11.4'	53°45.3'
1	25°15.6'	S 10°08.5'	13.2'	13.4'	56.7'	101°16.5'	97°45.0'	88°34.3'	83°51.0'	19°45.2'	22°28.5'	38°44.0'	54°09.2'
2	39°47.7'	S 9°55.2'	13.2'	13.4'	56.6'	100°45.5'	97°14.6'	88°06.7'	83°18.5'	20°04.2'	23°00.9'	39°16.6'	54°33.1'
3	54°20.0'	S 9°41.8'	13.3'	13.4'	56.6'	100°14.5'	96°44.2'	87°39.0'	82°46.0'	20°23.7'	23°33.3'	39°49.1'	54°57.2'
4	68°52.3'	S 9°28.3'	13.4'	13.5'	56.6'	99°43.6'	96°13.8'	87°11.4'	82°13.6'	20°43.8'	24°05.8'	40°21.7'	55°21.3'
5	83°24.7'	S 9°14.9'	13.4'	13.5'	56.6'	99°12.6'	95°43.4'	86°43.8'	81°41.1'	21°04.3'	24°38.2'	40°54.2'	55°45.5'
6	97°57.1'	S 9°01.4'	13.5'	13.5'	56.6'	98°41.7'	95°13.1'	86°16.2'	81°08.7'	21°25.3'	25°10.6'	41°26.7'	56°09.8'
7	112°29.6'	S 8°47.8'	13.5'	13.6'	56.5'	98°10.8'	94°42.7'	85°48.7'	80°36.4'	21°46.7'	25°43.0'	41°59.2'	56°34.2'
8	127°02.1'	S 8°34.3'	13.6'	13.6'	56.5'	97°39.9'	94°12.4'	85°21.2'	80°04.0'	22°08.5'	26°15.3'	42°31.7'	56°58.6'
9	141°34.7'	S 8°20.7'	13.7'	13.6'	56.5'	97°09.0'	93°42.1'	84°53.7'	79°31.7'	22°30.7'	26°47.7'	43°04.1'	57°23.1'
10	156°07.4'	S 8°07.1'	13.7'	13.6'	56.5'	96°38.2'	93°11.9'	84°26.2'	78°59.4'	22°53.3'	27°20.1'	43°36.6'	57°47.6'
11	170°40.1'	S 7°53.5'	13.8'	13.7'	56.4'	96°07.3'	92°41.6'	83°58.8'	78°27.1'	23°16.3'	27°52.4'	44°09.0'	58°12.2'
12	185°12.9'	S 7°39.8'	13.8'	13.7'	56.4'	95°36.5'	92°11.4'	83°31.4'	77°54.9'	23°39.6'	28°24.7'	44°41.3'	58°36.9'
13	199°45.7'	S 7°26.1'	13.9'	13.7'	56.4'	95°05.7'	91°41.2'	83°04.0'	77°22.6'	24°03.2'	28°57.1'	45°13.7'	59°01.7'
14	214°18.6'	S 7°12.4'	13.9'	13.7'	56.4'	94°35.0'	91°11.0'	82°36.7'	76°50.4'	24°27.1'	29°29.4'	45°46.0'	59°26.5'
15	228°51.5'	S 6°58.7'	14.0'	13.8'	56.4'	94°04.2'	90°40.8'	82°09.3'	76°18.3'	24°51.2'	30°01.7'	46°18.4'	59°51.3'
16	243°24.5'	S 6°44.9'	14.0'	13.8'	56.3'	93°33.5'	90°10.7'	81°42.1'	75°46.1'	25°15.7'	30°33.9'	46°50.6'	60°16.2'
17	257°57.5'	S 6°31.1'	14.1'	13.8'	56.3'	93°02.8'	89°40.5'	81°14.8'	75°14.0'	25°40.4'	31°06.2'	47°22.9'	60°41.2'
18	272°30.6'	S 6°17.4'	14.1'	13.8'	56.3'	92°32.1'	89°10.4'	80°47.6'	74°41.9'	26°05.3'	31°38.4'	47°55.2'	61°06.2'
19	287°03.8'	S 6°03.6'	14.2'	13.8'	56.3'	92°01.4'	88°40.4'	80°20.5'	74°09.8'	26°30.5'	32°10.7'	48°27.4'	61°31.2'
20	301°36.9'	S 5°49.7'	14.2'	13.8'	56.2'	91°30.8'	88°10.3'	79°53.3'	73°37.8'	26°55.9'	32°42.9'	48°59.6'	61°56.3'
21	316°10.2'	S 5°35.9'	14.3'	13.8'	56.2'	91°00.2'	87°40.3'	79°26.2'	73°05.7'	27°21.5'	33°15.1'	49°31.8'	62°21.5'
22	330°43.5'	S 5°22.0'	14.3'	13.9'	56.2'	90°29.6'	87°10.3'	78°59.2'	72°33.7'	27°47.2'	33°47.2'	50°03.9'	62°46.7'
23	345°16.8'	S 5°08.2'	14.4'	13.9'	56.2'	89°59.0'	86°40.3'	78°32.2'	72°01.8'	28°13.2'	34°19.4'	50°36.0'	63°11.9'
Mer. pass.		0 h 1 m SD 15.5'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°58.8'	N 89°21.0'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.8'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	0°05.4'	181°42.6'	N 0°42.1'	141°24.7'	S 16°45.2'	33°49.3'	S 14°48.0'	50°15.4'	S 19°15.5'	176°13.3'	S 0°49.8'
1	15°07.9'	196°42.8'	N 0°41.2'	156°24.4'	S 16°46.2'	48°52.0'	S 14°48.1'	65°18.0'	S 19°15.5'	191°14.3'	S 0°50.4'
2	30°10.3'	211°43.1'	N 0°40.2'	171°24.1'	S 16°47.2'	63°54.7'	S 14°48.1'	80°20.5'	S 19°15.6'	206°15.3'	S 0°51.1'
3	45°12.8'	226°43.3'	N 0°39.2'	186°23.8'	S 16°48.3'	78°57.3'	S 14°48.2'	95°23.1'	S 19°15.6'	221°16.3'	S 0°51.7'
4	60°15.3'	241°43.5'	N 0°38.2'	201°23.5'	S 16°49.3'	94°00.0'	S 14°48.3'	110°25.6'	S 19°15.6'	236°17.3'	S 0°52.4'
5	75°17.7'	256°43.7'	N 0°37.3'	216°23.2'	S 16°50.4'	109°02.7'	S 14°48.3'	125°28.2'	S 19°15.6'	251°18.3'	S 0°53.1'
6	90°20.2'	271°44.0'	N 0°36.3'	231°22.9'	S 16°51.4'	124°05.4'	S 14°48.4'	140°30.7'	S 19°15.6'	266°19.2'	S 0°53.7'
7	105°22.7'	286°44.2'	N 0°35.3'	246°22.6'	S 16°52.5'	139°08.0'	S 14°48.5'	155°33.3'	S 19°15.7'	281°20.2'	S 0°54.4'
8	120°25.1'	301°44.4'	N 0°34.4'	261°22.3'	S 16°53.5'	154°10.7'	S 14°48.5'	170°35.8'	S 19°15.7'	296°21.2'	S 0°55.0'
9	135°27.6'	316°44.6'	N 0°33.4'	276°22.0'	S 16°54.5'	169°13.4'	S 14°48.6'	185°38.4'	S 19°15.7'	311°22.2'	S 0°55.7'
10	150°30.0'	331°44.8'	N 0°32.4'	291°21.7'	S 16°55.6'	184°16.0'	S 14°48.7'	200°40.9'	S 19°15.7'	326°23.2'	S 0°56.4'
11	165°32.5'	346°45.1'	N 0°31.4'	306°21.4'	S 16°56.6'	199°18.7'	S 14°48.7'	215°43.5'	S 19°15.8'	341°24.1'	S 0°57.0'
12	180°35.0'	1°45.3'	N 0°30.5'	321°21.1'	S 16°57.6'	214°21.4'	S 14°48.8'	230°46.0'	S 19°15.8'	356°25.1'	S 0°57.7'
13	195°37.4'	16°45.5'	N 0°29.5'	336°20.8'	S 16°58.7'	229°24.1'	S 14°48.9'	245°48.5'	S 19°15.8'	11°26.1'	S 0°58.3'
14	210°39.9'	31°45.7'	N 0°28.5'	351°20.5'	S 16°59.7'	244°26.7'	S 14°48.9'	260°51.1'	S 19°15.8'	26°27.1'	S 0°59.0'
15	225°42.4'	46°46.0'	N 0°27.6'	6°20.2'	S 17°00.8'	259°29.4'	S 14°49.0'	275°53.6'	S 19°15.8'	41°28.1'	S 0°59.7'
16	240°44.8'	61°46.2'	N 0°26.6'	21°19.9'	S 17°01.8'	274°32.1'	S 14°49.1'	290°56.2'	S 19°15.9'	56°29.0'	S 1°00.3'
17	255°47.3'	76°46.4'	N 0°25.6'	36°19.6'	S 17°02.8'	289°34.7'	S 14°49.1'	305°58.7'	S 19°15.9'	71°30.0'	S 1°01.0'
18	270°49.8'	91°46.6'	N 0°24.6'	51°19.3'	S 17°03.9'	304°37.4'	S 14°49.2'	321°01.3'	S 19°15.9'	86°31.0'	S 1°01.6'
19	285°52.2'	106°46.8'	N 0°23.7'	66°19.0'	S 17°04.9'	319°40.1'	S 14°49.3'	336°03.8'	S 19°15.9'	101°32.0'	S 1°02.3'
20	300°54.7'	121°47.1'	N 0°22.7'	81°18.7'	S 17°05.9'	334°42.7'	S 14°49.3'	351°06.4'	S 19°15.9'	116°33.0'	S 1°03.0'
21	315°57.1'	136°47.3'	N 0°21.7'	96°18.4'	S 17°07.0'	349°45.4'	S 14°49.4'	6°08.9'	S 19°16.0'	131°33.9'	S 1°03.6'
22	330°59.6'	151°47.5'	N 0°20.8'	111°18.1'	S 17°08.0'	4°48.1'	S 14°49.5'	21°11.4'	S 19°16.0'	146°34.9'	S 1°04.3'
23	346°02.1'	166°47.7'	N 0°19.8'	126°17.8'	S 17°09.0'	19°50.7'	S 14°49.5'	36°14.0'	S 19°16.0'	161°35.9'	S 1°04.9'
		SD 15.9' d -1.0'		v -0.3' d -1.0'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 53 m 0 s		14 h 35 m		21 h 41 m		20 h 36 m		12 h 14 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	359°50.1'	S 4°54.3'	14.4'	13.9'	56.2'	89°28.5'	86°10.3'	78°05.2'	71°29.8'	28°39.3'	34°51.5'	51°08.2'	63°37.2'
1	14°23.5'	S 4°40.4'	14.4'	13.9'	56.1'	88°58.0'	85°40.4'	77°38.2'	70°57.9'	29°05.6'	35°23.6'	51°40.2'	64°02.5'
2	28°57.0'	S 4°26.5'	14.5'	13.9'	56.1'	88°27.5'	85°10.5'	77°11.3'	70°26.0'	29°32.1'	35°55.7'	52°12.3'	64°27.8'
3	43°30.5'	S 4°12.6'	14.5'	13.9'	56.1'	87°57.0'	84°40.6'	76°44.5'	69°54.2'	29°58.7'	36°27.8'	52°44.3'	64°53.2'
4	58°04.0'	S 3°58.7'	14.6'	13.9'	56.1'	87°26.5'	84°10.8'	76°17.7'	69°22.3'	30°25.4'	36°59.8'	53°16.3'	65°18.6'
5	72°37.6'	S 3°44.8'	14.6'	13.9'	56.0'	86°56.1'	83°41.0'	75°50.9'	68°50.5'	30°52.3'	37°31.9'	53°48.3'	65°44.0'
6	87°11.2'	S 3°30.9'	14.6'	13.9'	56.0'	86°25.7'	83°11.2'	75°24.2'	68°18.7'	31°19.3'	38°03.9'	54°20.3'	66°09.5'
7	101°44.8'	S 3°17.0'	14.7'	13.9'	56.0'	85°55.4'	82°41.4'	74°57.5'	67°47.0'	31°46.4'	38°35.9'	54°52.2'	66°34.9'
8	116°18.5'	S 3°03.0'	14.7'	13.9'	56.0'	85°25.0'	82°11.7'	74°30.8'	67°15.2'	32°13.6'	39°07.9'	55°24.2'	67°00.5'
9	130°52.2'	S 2°49.1'	14.8'	13.9'	56.0'	84°54.7'	81°42.0'	74°04.2'	66°43.5'	32°40.9'	39°39.8'	55°56.1'	67°26.0'
10	145°26.0'	S 2°35.2'	14.8'	13.9'	55.9'	84°24.4'	81°12.3'	73°37.7'	66°11.9'	33°08.3'	40°11.7'	56°27.9'	67°51.6'
11	159°59.8'	S 2°21.2'	14.8'	13.9'	55.9'	83°54.1'	80°42.6'	73°11.2'	65°40.2'	33°35.9'	40°43.6'	56°59.8'	68°17.1'
12	174°33.6'	S 2°07.3'	14.8'	13.9'	55.9'	83°23.9'	80°13.0'	72°44.7'	65°08.6'	34°03.5'	41°15.5'	57°31.6'	68°42.7'
13	189°07.4'	S 1°53.4'	14.9'	13.9'	55.9'	82°53.7'	79°43.4'	72°18.3'	64°37.0'	34°31.2'	41°47.4'	58°03.4'	69°08.4'
14	203°41.3'	S 1°39.4'	14.9'	13.9'	55.9'	82°23.5'	79°13.9'	71°52.0'	64°05.4'	34°59.0'	42°19.2'	58°35.2'	69°34.0'
15	218°15.2'	S 1°25.5'	14.9'	13.9'	55.8'	81°53.4'	78°44.3'	71°25.7'	63°33.9'	35°26.8'	42°51.0'	59°06.9'	69°59.7'
16	232°49.2'	S 1°11.6'	15.0'	13.9'	55.8'	81°23.2'	78°14.8'	70°59.5'	63°02.4'	35°54.7'	43°22.8'	59°38.6'	70°25.4'
17	247°23.1'	S 0°57.7'	15.0'	13.9'	55.8'	80°53.1'	77°45.4'	70°33.3'	62°30.9'	36°22.7'	43°54.6'	60°10.3'	70°51.0'
18	261°57.1'	S 0°43.8'	15.0'	13.9'	55.8'	80°23.1'	77°15.9'	70°07.1'	61°59.4'	36°50.8'	44°26.4'	60°42.0'	71°16.8'
19	276°31.1'	S 0°29.9'	15.0'	13.9'	55.7'	79°53.0'	76°46.5'	69°41.0'	61°28.0'	37°18.9'	44°58.1'	61°13.7'	71°42.5'
20	291°05.2'	S 0°16.0'	15.1'	13.9'	55.7'	79°23.0'	76°17.2'	69°15.0'	60°56.6'	37°47.1'	45°29.8'	61°45.3'	72°08.2'
21	305°39.2'	S 0°02.1'	15.1'	13.9'	55.7'	78°53.0'	75°47.8'	68°49.0'	60°25.2'	38°15.3'	46°01.5'	62°16.9'	72°33.9'
22	320°13.3'	N 0°11.8'	15.1'	13.9'	55.7'	78°23.1'	75°18.5'	68°23.1'	59°53.8'	38°43.6'	46°33.1'	62°48.5'	72°59.7'
23	334°47.4'	N 0°25.6'	15.1'	13.8'	55.7'	77°53.2'	74°49.3'	67°57.3'	59°22.5'	39°11.9'	47°04.8'	63°20.0'	73°25.5'
Mer. pass.		0 h 1 m SD 15.3'		phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.4'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°58.5'	N 89°21.1'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.3'	S 60°28.6'	Canopus	-0.6	263°53.7'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	1°04.5'	181°48.0'	N 0°18.8'	141°17.5'	S 17°10.1'	34°53.4'	S 14°49.6'	51°16.5'	S 19°16.0'	176°36.9'	S 1°05.6'
1	16°07.0'	196°48.2'	N 0°17.8'	156°17.2'	S 17°11.1'	49°56.1'	S 14°49.7'	66°19.1'	S 19°16.0'	191°37.9'	S 1°06.3'
2	31°09.5'	211°48.4'	N 0°16.9'	171°16.9'	S 17°12.1'	64°58.7'	S 14°49.7'	81°21.6'	S 19°16.1'	206°38.9'	S 1°06.9'
3	46°11.9'	226°48.6'	N 0°15.9'	186°16.6'	S 17°13.1'	80°01.4'	S 14°49.8'	96°24.2'	S 19°16.1'	221°39.8'	S 1°07.6'
4	61°14.4'	241°48.8'	N 0°14.9'	201°16.3'	S 17°14.2'	95°04.1'	S 14°49.9'	111°26.7'	S 19°16.1'	236°40.8'	S 1°08.2'
5	76°16.9'	256°49.1'	N 0°13.9'	216°16.0'	S 17°15.2'	110°06.7'	S 14°49.9'	126°29.2'	S 19°16.1'	251°41.8'	S 1°08.9'
6	91°19.3'	271°49.3'	N 0°13.0'	231°15.7'	S 17°16.2'	125°09.4'	S 14°50.0'	141°31.8'	S 19°16.1'	266°42.8'	S 1°09.6'
7	106°21.8'	286°49.5'	N 0°12.0'	246°15.4'	S 17°17.2'	140°12.1'	S 14°50.1'	156°34.3'	S 19°16.2'	281°43.8'	S 1°10.2'
8	121°24.3'	301°49.7'	N 0°11.0'	261°15.1'	S 17°18.3'	155°14.7'	S 14°50.1'	171°36.9'	S 19°16.2'	296°44.7'	S 1°10.9'
9	136°26.7'	316°49.9'	N 0°10.1'	276°14.8'	S 17°19.3'	170°17.4'	S 14°50.2'	186°39.4'	S 19°16.2'	311°45.7'	S 1°11.5'
10	151°29.2'	331°50.2'	N 0°09.1'	291°14.4'	S 17°20.3'	185°20.1'	S 14°50.3'	201°42.0'	S 19°16.2'	326°46.7'	S 1°12.2'
11	166°31.6'	346°50.4'	N 0°08.1'	306°14.1'	S 17°21.3'	200°22.7'	S 14°50.3'	216°44.5'	S 19°16.2'	341°47.7'	S 1°12.9'
12	181°34.1'	1°50.6'	N 0°07.1'	321°13.8'	S 17°22.4'	215°25.4'	S 14°50.4'	231°47.0'	S 19°16.3'	356°48.7'	S 1°13.5'
13	196°36.6'	16°50.8'	N 0°06.2'	336°13.5'	S 17°23.4'	230°28.0'	S 14°50.5'	246°49.6'	S 19°16.3'	11°49.6'	S 1°14.2'
14	211°39.0'	31°51.0'	N 0°05.2'	351°13.2'	S 17°24.4'	245°30.7'	S 14°50.5'	261°52.1'	S 19°16.3'	26°50.6'	S 1°14.8'
15	226°41.5'	46°51.3'	N 0°04.2'	6°12.9'	S 17°25.4'	260°33.4'	S 14°50.6'	276°54.7'	S 19°16.3'	41°51.6'	S 1°15.5'
16	241°44.0'	61°51.5'	N 0°03.3'	21°12.6'	S 17°26.4'	275°36.0'	S 14°50.6'	291°57.2'	S 19°16.3'	56°52.6'	S 1°16.2'
17	256°46.4'	76°51.7'	N 0°02.3'	36°12.3'	S 17°27.5'	290°38.7'	S 14°50.7'	306°59.7'	S 19°16.4'	71°53.6'	S 1°16.8'
18	271°48.9'	91°51.9'	N 0°01.3'	51°12.0'	S 17°28.5'	305°41.4'	S 14°50.8'	322°02.3'	S 19°16.4'	86°54.5'	S 1°17.5'
19	286°51.4'	106°52.1'	N 0°00.3'	66°11.7'	S 17°29.5'	320°44.0'	S 14°50.8'	337°04.8'	S 19°16.4'	101°55.5'	S 1°18.1'
20	301°53.8'	121°52.4'	S 0°00.6'	81°11.4'	S 17°30.5'	335°46.7'	S 14°50.9'	352°07.4'	S 19°16.4'	116°56.5'	S 1°18.8'
21	316°56.3'	136°52.6'	S 0°01.6'	96°11.1'	S 17°31.5'	350°49.3'	S 14°51.0'	7°09.9'	S 19°16.4'	131°57.5'	S 1°19.5'
22	331°58.7'	151°52.8'	S 0°02.6'	111°10.8'	S 17°32.5'	5°52.0'	S 14°51.0'	22°12.4'	S 19°16.5'	146°58.4'	S 1°20.1'
23	347°01.2'	166°53.0'	S 0°03.6'	126°10.5'	S 17°33.6'	20°54.7'	S 14°51.1'	37°15.0'	S 19°16.5'	161°59.4'	S 1°20.8'
		SD 15.9' d -1.0'		v -0.3' d -1.0'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 1.9' d -0.7'	
Mer. pass.		11 h 52 m 39 s		14 h 35 m		21 h 37 m		20 h 31 m		12 h 13 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	349°21.6'	N 0°39.5'	15.2'	13.8'	55.6'	77°23.3'	74°20.0'	67°31.5'	58°51.2'	39°40.3'	47°36.4'	63°51.5'	73°51.2'
1	3°55.7'	N 0°53.3'	15.2'	13.8'	55.6'	76°53.4'	73°50.8'	67°05.7'	58°19.9'	40°08.7'	48°08.0'	64°23.0'	74°17.0'
2	18°29.9'	N 1°07.1'	15.2'	13.8'	55.6'	76°23.6'	73°21.7'	66°40.1'	57°48.7'	40°37.2'	48°39.5'	64°54.5'	74°42.8'
3	33°04.1'	N 1°20.9'	15.2'	13.8'	55.6'	75°53.8'	72°52.5'	66°14.4'	57°17.5'	41°05.7'	49°11.1'	65°26.0'	75°08.6'
4	47°38.3'	N 1°34.7'	15.2'	13.8'	55.6'	75°24.0'	72°23.4'	65°48.9'	56°46.3'	41°34.2'	49°42.6'	65°57.4'	75°34.4'
5	62°12.5'	N 1°48.5'	15.2'	13.8'	55.5'	74°54.3'	71°54.4'	65°23.4'	56°15.1'	42°02.8'	50°14.1'	66°28.8'	76°00.2'
6	76°46.7'	N 2°02.2'	15.3'	13.7'	55.5'	74°24.6'	71°25.4'	64°58.0'	55°44.0'	42°31.4'	50°45.6'	67°00.2'	76°26.0'
7	91°21.0'	N 2°16.0'	15.3'	13.7'	55.5'	73°54.9'	70°56.4'	64°32.6'	55°12.9'	43°00.0'	51°17.0'	67°31.6'	76°51.8'
8	105°55.3'	N 2°29.7'	15.3'	13.7'	55.5'	73°25.3'	70°27.4'	64°07.3'	54°41.8'	43°28.7'	51°48.4'	68°02.9'	77°17.6'
9	120°29.5'	N 2°43.4'	15.3'	13.7'	55.5'	72°55.7'	69°58.5'	63°42.1'	54°10.8'	43°57.4'	52°19.8'	68°34.2'	77°43.4'
10	135°03.8'	N 2°57.0'	15.3'	13.6'	55.4'	72°26.1'	69°29.6'	63°17.0'	53°39.7'	44°26.1'	52°51.2'	69°05.5'	78°09.2'
11	149°38.1'	N 3°10.7'	15.3'	13.6'	55.4'	71°56.5'	69°00.8'	62°51.9'	53°08.7'	44°54.8'	53°22.6'	69°36.7'	78°35.0'
12	164°12.4'	N 3°24.3'	15.3'	13.6'	55.4'	71°27.0'	68°32.0'	62°26.9'	52°37.8'	45°23.6'	53°53.9'	70°08.0'	79°00.8'
13	178°46.8'	N 3°37.9'	15.3'	13.6'	55.4'	70°57.6'	68°03.3'	62°02.0'	52°06.8'	45°52.3'	54°25.2'	70°39.2'	79°26.6'
14	193°21.1'	N 3°51.5'	15.3'	13.6'	55.4'	70°28.1'	67°34.5'	61°37.1'	51°35.9'	46°21.1'	54°56.5'	71°10.4'	79°52.4'
15	207°55.4'	N 4°05.0'	15.3'	13.5'	55.3'	69°58.7'	67°05.9'	61°12.3'	51°05.0'	46°49.9'	55°27.8'	71°41.6'	80°18.2'
16	222°29.8'	N 4°18.6'	15.3'	13.5'	55.3'	69°29.3'	66°37.2'	60°47.6'	50°34.2'	47°18.8'	55°59.0'	72°12.7'	80°43.9'
17	237°04.1'	N 4°32.1'	15.3'	13.5'	55.3'	68°00.0'	66°08.6'	60°23.0'	50°03.4'	47°47.6'	56°30.2'	72°43.8'	81°09.7'
18	251°38.5'	N 4°45.5'	15.4'	13.4'	55.3'	68°30.7'	65°40.1'	59°58.5'	49°32.6'	48°16.5'	57°01.4'	73°14.9'	81°35.5'
19	266°12.8'	N 4°59.0'	15.4'	13.4'	55.3'	68°01.4'	65°11.6'	59°34.0'	49°01.8'	48°45.3'	57°32.6'	73°46.0'	82°01.2'
20	280°47.2'	N 5°12.4'	15.4'	13.4'	55.2'	67°32.2'	64°43.1'	59°09.6'	48°31.1'	49°14.2'	58°03.8'	74°17.0'	82°27.0'
21	295°21.5'	N 5°25.8'	15.4'	13.3'	55.2'	67°03.0'	64°14.7'	58°45.3'	48°00.3'	49°43.1'	58°34.9'	74°48.1'	82°52.7'
22	309°55.9'	N 5°39.1'	15.4'	13.3'	55.2'	66°33.8'	63°46.3'	58°21.1'	47°29.7'	50°12.0'	59°06.0'	75°19.1'	83°18.5'
23	324°30.2'	N 5°52.4'	15.4'	13.3'	55.2'	66°04.7'	63°17.9'	57°56.9'	46°59.0'	50°40.9'	59°37.1'	75°50.0'	83°44.2'
Mer. pass.		0 h 44 m SD 15.2'		phase 99%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°58.1'	N 89°21.1'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	2°03.7'	181°53.3'	S 0°04.5'	141°10.2'	S 17°34.6'	35°57.3'	S 14°51.2'	52°17.5'	S 19°16.5'	177°00.4'	S 1°21.4'
1	17°06.1'	196°53.5'	S 0°05.5'	156°09.8'	S 17°35.6'	50°60.0'	S 14°51.2'	67°20.1'	S 19°16.5'	192°01.4'	S 1°22.1'
2	32°08.6'	211°53.7'	S 0°06.5'	171°09.5'	S 17°36.6'	66°02.6'	S 14°51.3'	82°22.6'	S 19°16.5'	207°02.4'	S 1°22.8'
3	47°11.1'	226°53.9'	S 0°07.4'	186°09.2'	S 17°37.6'	81°05.3'	S 14°51.3'	97°25.1'	S 19°16.5'	222°03.3'	S 1°23.4'
4	62°13.5'	241°54.1'	S 0°08.4'	201°08.9'	S 17°38.6'	96°08.0'	S 14°51.4'	112°27.7'	S 19°16.6'	237°04.3'	S 1°24.1'
5	77°16.0'	256°54.4'	S 0°09.4'	216°08.6'	S 17°39.6'	111°10.6'	S 14°51.5'	127°30.2'	S 19°16.6'	252°05.3'	S 1°24.7'
6	92°18.5'	271°54.6'	S 0°10.4'	231°08.3'	S 17°40.6'	126°13.3'	S 14°51.5'	142°32.8'	S 19°16.6'	267°06.3'	S 1°25.4'
7	107°20.9'	286°54.8'	S 0°11.3'	246°08.0'	S 17°41.7'	141°15.9'	S 14°51.6'	157°35.3'	S 19°16.6'	282°07.3'	S 1°26.1'
8	122°23.4'	301°55.0'	S 0°12.3'	261°07.7'	S 17°42.7'	156°18.6'	S 14°51.7'	172°37.8'	S 19°16.6'	297°08.2'	S 1°26.7'
9	137°25.9'	316°55.2'	S 0°13.3'	276°07.4'	S 17°43.7'	171°21.3'	S 14°51.7'	187°40.4'	S 19°16.7'	312°09.2'	S 1°27.4'
10	152°28.3'	331°55.4'	S 0°14.3'	291°07.0'	S 17°44.7'	186°23.9'	S 14°51.8'	202°42.9'	S 19°16.7'	327°10.2'	S 1°28.0'
11	167°30.8'	346°55.7'	S 0°15.2'	306°06.7'	S 17°45.7'	201°26.6'	S 14°51.8'	217°45.4'	S 19°16.7'	342°11.2'	S 1°28.7'
12	182°33.2'	1°55.9'	S 0°16.2'	321°06.4'	S 17°46.7'	216°29.2'	S 14°51.9'	232°48.0'	S 19°16.7'	357°12.1'	S 1°29.4'
13	197°35.7'	16°56.1'	S 0°17.2'	336°06.1'	S 17°47.7'	231°31.9'	S 14°52.0'	247°50.5'	S 19°16.7'	12°13.1'	S 1°30.0'
14	212°38.2'	31°56.3'	S 0°18.1'	351°05.8'	S 17°48.7'	246°34.5'	S 14°52.0'	262°53.1'	S 19°16.8'	27°14.1'	S 1°30.7'
15	227°40.6'	46°56.5'	S 0°19.1'	6°05.5'	S 17°49.7'	261°37.2'	S 14°52.1'	277°55.6'	S 19°16.8'	42°15.1'	S 1°31.3'
16	242°43.1'	61°56.8'	S 0°20.1'	21°05.2'	S 17°50.7'	276°39.8'	S 14°52.2'	292°58.1'	S 19°16.8'	57°16.1'	S 1°32.0'
17	257°45.6'	76°57.0'	S 0°21.1'	36°04.9'	S 17°51.7'	291°42.5'	S 14°52.2'	308°00.7'	S 19°16.8'	72°17.0'	S 1°32.7'
18	272°48.0'	91°57.2'	S 0°22.0'	51°04.5'	S 17°52.7'	306°45.2'	S 14°52.3'	323°03.2'	S 19°16.8'	87°18.0'	S 1°33.3'
19	287°50.5'	106°57.4'	S 0°23.0'	66°04.2'	S 17°53.7'	321°47.8'	S 14°52.3'	338°05.7'	S 19°16.8'	102°19.0'	S 1°34.0'
20	302°53.0'	121°57.6'	S 0°24.0'	81°03.9'	S 17°54.7'	336°50.5'	S 14°52.4'	353°08.3'	S 19°16.9'	117°20.0'	S 1°34.6'
21	317°55.4'	136°57.9'	S 0°25.0'	96°03.6'	S 17°55.7'	351°53.1'	S 14°52.5'	8°10.8'	S 19°16.9'	132°20.9'	S 1°35.3'
22	332°57.9'	151°58.1'	S 0°25.9'	111°03.3'	S 17°56.7'	6°55.8'	S 14°52.5'	23°13.3'	S 19°16.9'	147°21.9'	S 1°36.0'
23	348°00.4'	166°58.3'	S 0°26.9'	126°03.0'	S 17°57.7'	21°58.4'	S 14°52.6'	38°15.9'	S 19°16.9'	162°22.9'	S 1°36.6'
		SD 15.9' d -1.0'		v -0.3' d -1.0'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 52 m 18 s		14 h 36 m		21 h 32 m		20 h 27 m		12 h 11 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	339°04.6'	N 6°05.7'	15.4'	13.2'	55.2'	65°35.6'	62°49.6'	57°32.9'	46°28.4'	51°09.8'	60°08.1'	76°21.0'	84°09.9'
1	353°39.0'	N 6°19.0'	15.4'	13.2'	55.1'	65°06.6'	62°21.4'	57°08.9'	45°57.8'	51°38.7'	60°39.2'	76°51.9'	84°35.6'
2	8°13.3'	N 6°32.2'	15.3'	13.2'	55.1'	64°37.5'	61°53.2'	56°45.1'	45°27.2'	52°07.7'	61°10.2'	77°22.8'	85°01.3'
3	22°47.7'	N 6°45.4'	15.3'	13.1'	55.1'	64°08.6'	61°25.0'	56°21.3'	44°56.7'	52°36.6'	61°41.2'	77°53.7'	85°27.0'
4	37°22.0'	N 6°58.5'	15.3'	13.1'	55.1'	63°39.6'	60°56.9'	55°57.6'	44°26.2'	53°05.5'	62°12.1'	78°24.6'	85°52.7'
5	51°56.3'	N 7°11.6'	15.3'	13.1'	55.1'	63°10.7'	60°28.9'	55°34.0'	43°55.7'	53°34.5'	62°43.1'	78°55.4'	86°18.3'
6	66°30.7'	N 7°24.7'	15.3'	13.0'	55.0'	62°41.9'	60°00.8'	55°10.6'	43°25.2'	54°03.4'	63°14.0'	79°26.2'	86°44.0'
7	81°05.0'	N 7°37.7'	15.3'	13.0'	55.0'	62°13.0'	59°32.9'	54°47.2'	42°54.8'	54°32.4'	63°44.9'	79°57.0'	87°09.6'
8	95°39.3'	N 7°50.7'	15.3'	12.9'	55.0'	61°44.2'	59°04.9'	54°23.9'	42°24.4'	55°01.3'	64°15.8'	80°27.8'	87°35.2'
9	110°13.6'	N 8°03.6'	15.3'	12.9'	55.0'	61°15.5'	58°37.1'	54°00.7'	41°54.0'	55°30.3'	64°46.6'	80°58.5'	88°00.8'
10	124°47.9'	N 8°16.6'	15.3'	12.9'	55.0'	60°46.8'	58°09.2'	53°37.6'	41°23.7'	55°59.2'	65°17.5'	81°29.3'	88°26.4'
11	139°22.2'	N 8°29.4'	15.3'	12.8'	55.0'	60°18.1'	57°41.5'	53°14.6'	40°53.4'	56°28.2'	65°48.3'	81°60.0'	88°52.0'
12	153°56.5'	N 8°42.2'	15.3'	12.8'	54.9'	59°49.5'	57°13.7'	52°51.7'	40°23.1'	56°57.1'	66°19.1'	82°30.6'	89°17.5'
13	168°30.8'	N 8°55.0'	15.3'	12.7'	54.9'	59°20.9'	56°46.1'	52°29.0'	39°52.9'	57°26.0'	66°49.8'	83°01.3'	89°43.1'
14	183°05.0'	N 9°07.8'	15.2'	12.7'	54.9'	58°52.4'	56°18.5'	52°06.3'	39°22.7'	57°55.0'	67°20.6'	83°31.9'	90°08.6'
15	197°39.3'	N 9°20.5'	15.2'	12.6'	54.9'	58°23.9'	55°50.9'	51°43.8'	38°52.5'	58°23.9'	67°51.3'	84°02.5'	90°34.1'
16	212°13.5'	N 9°33.1'	15.2'	12.6'	54.9'	57°55.4'	55°23.4'	51°21.4'	38°22.3'	58°52.9'	68°22.0'	84°33.1'	90°59.5'
17	226°47.7'	N 9°45.7'	15.2'	12.6'	54.8'	57°27.0'	54°55.9'	50°59.1'	37°52.2'	59°21.8'	68°52.7'	85°03.7'	91°25.0'
18	241°21.9'	N 9°58.2'	15.2'	12.5'	54.8'	56°58.6'	54°28.5'	50°36.9'	37°22.1'	59°50.7'	69°23.4'	85°34.3'	91°50.4'
19	255°56.1'	N 10°10.8'	15.2'	12.5'	54.8'	56°30.3'	54°01.2'	50°14.8'	36°52.1'	60°19.7'	69°54.0'	86°04.8'	92°15.9'
20	270°30.3'	N 10°23.2'	15.1'	12.4'	54.8'	56°02.0'	53°33.9'	49°52.9'	36°22.0'	60°48.6'	70°24.6'	86°35.3'	92°41.3'
21	285°04.4'	N 10°35.6'	15.1'	12.4'	54.8'	55°33.8'	53°06.7'	49°31.0'	35°52.0'	61°17.5'	70°55.2'	87°05.8'	93°06.6'
22	299°38.5'	N 10°48.0'	15.1'	12.3'	54.8'	55°05.6'	52°39.5'	49°09.4'	35°22.1'	61°46.4'	71°25.8'	87°36.3'	93°32.0'
23	314°12.6'	N 11°00.3'	15.1'	12.3'	54.7'	54°37.5'	52°12.4'	48°47.8'	34°52.1'	62°15.3'	71°56.4'	88°06.7'	93°57.3'
Mer. pass.		1 h 26 m SD 15.0'		phase 96%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.4'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°57.7'	N 89°21.1'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	3°02.8'	181°58.5'	S 0°27.9'	141°02.7'	S 17°58.7'	37°01.1'	S 14°52.6'	53°18.4'	S 19°16.9'	177°23.9'	S 1°37.3'
1	18°05.3'	196°58.7'	S 0°28.9'	156°02.3'	S 17°59.7'	52°03.7'	S 14°52.7'	68°21.0'	S 19°17.0'	192°24.9'	S 1°37.9'
2	33°07.7'	211°59.0'	S 0°29.8'	171°02.0'	S 18°00.7'	67°06.4'	S 14°52.8'	83°23.5'	S 19°17.0'	207°25.8'	S 1°38.6'
3	48°10.2'	226°59.2'	S 0°30.8'	186°01.7'	S 18°01.7'	82°09.0'	S 14°52.8'	98°26.0'	S 19°17.0'	222°26.8'	S 1°39.3'
4	63°12.7'	241°59.4'	S 0°31.8'	201°01.4'	S 18°02.7'	97°11.7'	S 14°52.9'	113°28.6'	S 19°17.0'	237°27.8'	S 1°39.9'
5	78°15.1'	256°59.6'	S 0°32.7'	216°01.1'	S 18°03.7'	112°14.3'	S 14°52.9'	128°31.1'	S 19°17.0'	252°28.8'	S 1°40.6'
6	93°17.6'	271°59.8'	S 0°33.7'	231°00.8'	S 18°04.7'	127°17.0'	S 14°53.0'	143°33.6'	S 19°17.0'	267°29.7'	S 1°41.2'
7	108°20.1'	287°00.0'	S 0°34.7'	246°00.4'	S 18°05.7'	142°19.7'	S 14°53.1'	158°36.2'	S 19°17.1'	282°30.7'	S 1°41.9'
8	123°22.5'	302°00.3'	S 0°35.7'	261°00.1'	S 18°06.7'	157°22.3'	S 14°53.1'	173°38.7'	S 19°17.1'	297°31.7'	S 1°42.6'
9	138°25.0'	317°00.5'	S 0°36.6'	275°59.8'	S 18°07.7'	172°25.0'	S 14°53.2'	188°41.2'	S 19°17.1'	312°32.7'	S 1°43.2'
10	153°27.5'	332°00.7'	S 0°37.6'	290°59.5'	S 18°08.7'	187°27.6'	S 14°53.2'	203°43.8'	S 19°17.1'	327°33.7'	S 1°43.9'
11	168°29.9'	347°00.9'	S 0°38.6'	305°59.2'	S 18°09.7'	202°30.3'	S 14°53.3'	218°46.3'	S 19°17.1'	342°34.6'	S 1°44.5'
12	183°32.4'	27°01.1'	S 0°39.6'	320°58.8'	S 18°10.6'	217°32.9'	S 14°53.4'	233°48.8'	S 19°17.2'	357°35.6'	S 1°45.2'
13	198°34.8'	17°01.4'	S 0°40.5'	335°58.5'	S 18°11.6'	232°35.6'	S 14°53.4'	248°51.4'	S 19°17.2'	12°36.6'	S 1°45.9'
14	213°37.3'	32°01.6'	S 0°41.5'	350°58.2'	S 18°12.6'	247°38.2'	S 14°53.5'	263°53.9'	S 19°17.2'	27°37.6'	S 1°46.5'
15	228°39.8'	47°01.8'	S 0°42.5'	5°57.9'	S 18°13.6'	262°40.9'	S 14°53.5'	278°56.4'	S 19°17.2'	42°38.5'	S 1°47.2'
16	243°42.2'	62°02.0'	S 0°43.4'	20°57.6'	S 18°14.6'	277°43.5'	S 14°53.6'	293°59.0'	S 19°17.2'	57°39.5'	S 1°47.8'
17	258°44.7'	77°02.2'	S 0°44.4'	35°57.2'	S 18°15.6'	292°46.2'	S 14°53.7'	309°01.5'	S 19°17.2'	72°40.5'	S 1°48.5'
18	273°47.2'	92°02.4'	S 0°45.4'	50°56.9'	S 18°16.6'	307°48.8'	S 14°53.7'	324°04.0'	S 19°17.3'	87°41.5'	S 1°49.2'
19	288°49.6'	107°02.7'	S 0°46.4'	65°56.6'	S 18°17.6'	322°51.4'	S 14°53.8'	339°06.6'	S 19°17.3'	102°42.4'	S 1°49.8'
20	303°52.1'	122°02.9'	S 0°47.3'	80°56.3'	S 18°18.5'	337°54.1'	S 14°53.8'	354°09.1'	S 19°17.3'	117°43.4'	S 1°50.5'
21	318°54.6'	137°03.1'	S 0°48.3'	95°56.0'	S 18°19.5'	352°56.7'	S 14°53.9'	9°11.6'	S 19°17.3'	132°44.4'	S 1°51.1'
22	333°57.0'	152°03.3'	S 0°49.3'	110°55.6'	S 18°20.5'	7°59.4'	S 14°54.0'	24°14.2'	S 19°17.3'	147°45.4'	S 1°51.8'
23	348°59.5'	167°03.5'	S 0°50.3'	125°55.3'	S 18°21.5'	23°02.0'	S 14°54.0'	39°16.7'	S 19°17.3'	162°46.3'	S 1°52.5'
		SD 15.9' d -1.0'		v -0.3' d -1.0'		v 2.7' d -0.1'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 51 m 57 s		14 h 36 m		21 h 28 m		20 h 23 m		12 h 10 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	328°46.7'	N 11°12.5'	15.1'	12.2'	54.7'	54°09.4'	51°45.4'	48°26.4'	34°22.2'	62°44.2'		72°26.9'	88°37.1'
1	343°20.8'	N 11°24.7'	15.0'	12.1'	54.7'	53°41.3'	51°18.4'	48°05.1'	33°52.4'	63°13.1'		72°57.4'	89°07.5'
2	357°54.8'	N 11°36.9'	15.0'	12.1'	54.7'	53°13.3'	50°51.5'	47°43.9'	33°22.6'	63°42.0'	69°17.6'	73°27.9'	89°37.9'
3	12°28.9'	N 11°49.0'	15.0'	12.0'	54.7'	52°45.4'	50°24.6'	47°22.9'	32°52.8'	64°10.9'	69°32.7'	73°58.4'	90°08.3'
4	27°02.9'	N 12°01.0'	15.0'	12.0'	54.7'	52°17.5'	49°57.9'	47°02.0'	32°23.0'	64°39.8'	69°47.8'	74°28.9'	90°38.6'
5	41°36.8'	N 12°13.0'	14.9'	11.9'	54.7'	51°49.6'	49°31.1'	46°41.3'	31°53.3'	65°08.7'	70°03.0'	74°59.3'	91°09.0'
6	56°10.8'	N 12°24.9'	14.9'	11.9'	54.6'	51°21.8'	49°04.5'	46°20.7'	31°23.6'	65°37.5'	70°18.2'	75°29.8'	91°39.3'
7	70°44.7'	N 12°36.8'	14.9'	11.8'	54.6'	50°54.0'	48°37.9'	46°00.3'	30°53.9'	66°06.4'	70°33.5'	76°00.2'	92°09.6'
8	85°18.6'	N 12°48.6'	14.9'	11.8'	54.6'	50°26.3'	48°11.4'	45°40.0'	30°24.3'	66°35.3'	70°48.9'	76°30.5'	92°39.8'
9	99°52.5'	N 13°00.3'	14.8'	11.7'	54.6'	49°58.7'	47°45.0'	45°19.9'	29°54.7'	67°04.1'	71°04.3'	77°00.9'	93°10.1'
10	114°26.3'	N 13°12.0'	14.8'	11.6'	54.6'	49°31.1'	47°18.6'	44°60.0'	29°25.2'	67°32.9'	71°19.8'	77°31.3'	93°40.3'
11	129°00.1'	N 13°23.7'	14.8'	11.6'	54.6'	49°03.6'	46°52.3'	44°40.2'	28°55.7'	68°01.8'	71°35.4'	78°01.6'	94°10.5'
12	143°33.9'	N 13°35.3'	14.8'	11.5'	54.6'	48°36.1'	46°26.1'	44°20.6'	28°26.2'	68°30.6'	71°51.0'	78°31.9'	94°40.7'
13	158°07.7'	N 13°46.8'	14.7'	11.5'	54.5'	48°08.7'	45°59.9'	44°01.1'	27°56.8'	68°59.4'	72°06.6'	79°02.2'	95°10.9'
14	172°41.4'	N 13°58.2'	14.7'	11.4'	54.5'	47°41.3'	45°33.9'	43°41.8'	27°27.4'	69°28.2'	72°22.3'	79°32.5'	95°41.1'
15	187°15.1'	N 14°09.6'	14.7'	11.3'	54.5'	47°14.0'	45°07.9'	43°22.7'	26°58.1'	69°57.0'	72°38.1'	80°02.7'	96°11.2'
16	201°48.8'	N 14°20.9'	14.6'	11.3'	54.5'	46°46.7'	44°42.0'	43°03.8'	26°28.8'	70°25.8'	72°53.9'	80°33.0'	96°41.3'
17	216°22.4'	N 14°32.2'	14.6'	11.2'	54.5'	46°19.6'	44°16.2'	42°45.0'	25°59.6'	70°54.6'	73°09.7'	81°03.2'	97°11.5'
18	230°56.0'	N 14°43.4'	14.6'	11.1'	54.5'	45°52.4'	43°50.5'	42°26.5'	25°30.4'	71°23.4'	73°25.7'	81°33.4'	97°41.5'
19	245°29.6'	N 14°54.5'	14.5'	11.1'	54.5'	45°25.4'	43°24.8'	42°08.1'	25°01.2'	71°52.2'	73°41.6'	82°03.6'	98°11.6'
20	260°03.1'	N 15°05.6'	14.5'	11.0'	54.4'	44°58.4'	42°59.3'	41°49.9'	24°32.1'	72°20.9'	73°57.6'	82°33.8'	98°41.7'
21	274°36.6'	N 15°16.6'	14.5'	10.9'	54.4'	44°31.4'	42°33.9'	41°31.9'	24°03.1'	72°49.7'	74°13.7'	83°03.9'	99°11.7'
22	289°10.1'	N 15°27.5'	14.4'	10.9'	54.4'	44°04.6'	42°08.5'	41°14.2'	23°34.1'	73°18.4'	74°29.8'	83°34.1'	99°41.7'
23	303°43.5'	N 15°38.4'	14.4'	10.8'	54.4'	43°37.8'	41°43.2'	40°56.6'	23°05.2'	73°47.1'	74°45.9'	84°04.2'	100°11.7'
Mer. pass.		2 h 9 m SD 14.9'	phase 91%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.4'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°57.3'	N 89°21.1'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				



h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	4°02.0'	182°03.7'	S 0°51.2'	140°55.0'	S 18°22.5'	38°04.7'	S 14°54.1'	54°19.2'	S 19°17.4'	177°47.3'	S 1°53.1'
1	19°04.4'	197°04.0'	S 0°52.2'	155°54.7'	S 18°23.5'	53°07.3'	S 14°54.1'	69°21.7'	S 19°17.4'	192°48.3'	S 1°53.8'
2	34°06.9'	212°04.2'	S 0°53.2'	170°54.3'	S 18°24.4'	68°10.0'	S 14°54.2'	84°24.3'	S 19°17.4'	207°49.3'	S 1°54.4'
3	49°09.3'	227°04.4'	S 0°54.2'	185°54.0'	S 18°25.4'	83°12.6'	S 14°54.2'	99°26.8'	S 19°17.4'	222°50.2'	S 1°55.1'
4	64°11.8'	242°04.6'	S 0°55.1'	200°53.7'	S 18°26.4'	98°15.3'	S 14°54.3'	114°29.3'	S 19°17.4'	237°51.2'	S 1°55.7'
5	79°14.3'	257°04.8'	S 0°56.1'	215°53.4'	S 18°27.4'	113°17.9'	S 14°54.4'	129°31.9'	S 19°17.4'	252°52.2'	S 1°56.4'
6	94°16.7'	272°05.0'	S 0°57.1'	230°53.1'	S 18°28.3'	128°20.6'	S 14°54.4'	144°34.4'	S 19°17.5'	267°53.2'	S 1°57.1'
7	109°19.2'	287°05.3'	S 0°58.0'	245°52.7'	S 18°29.3'	143°23.2'	S 14°54.5'	159°36.9'	S 19°17.5'	282°54.1'	S 1°57.7'
8	124°21.7'	302°05.5'	S 0°59.0'	260°52.4'	S 18°30.3'	158°25.8'	S 14°54.5'	174°39.5'	S 19°17.5'	297°55.1'	S 1°58.4'
9	139°24.1'	317°05.7'	S 0°60.0'	275°52.1'	S 18°31.3'	173°28.5'	S 14°54.6'	189°42.0'	S 19°17.5'	312°56.1'	S 1°59.0'
10	154°26.6'	332°05.9'	S 1°01.0'	290°51.8'	S 18°32.3'	188°31.1'	S 14°54.7'	204°44.5'	S 19°17.5'	327°57.1'	S 1°59.7'
11	169°29.1'	347°06.1'	S 1°01.9'	305°51.4'	S 18°33.2'	203°33.8'	S 14°54.7'	219°47.1'	S 19°17.5'	342°58.0'	S 2°00.4'
12	184°31.5'	2°06.3'	S 1°02.9'	320°51.1'	S 18°34.2'	218°36.4'	S 14°54.8'	234°49.6'	S 19°17.6'	357°59.0'	S 2°01.0'
13	199°34.0'	17°06.6'	S 1°03.9'	335°50.8'	S 18°35.2'	233°39.1'	S 14°54.8'	249°52.1'	S 19°17.6'	12°60.0'	S 2°01.7'
14	214°36.4'	32°06.8'	S 1°04.9'	350°50.4'	S 18°36.1'	248°41.7'	S 14°54.9'	264°54.6'	S 19°17.6'	28°01.0'	S 2°02.3'
15	229°38.9'	47°07.0'	S 1°05.8'	5°50.1'	S 18°37.1'	263°44.4'	S 14°54.9'	279°57.2'	S 19°17.6'	43°01.9'	S 2°03.0'
16	244°41.4'	62°07.2'	S 1°06.8'	20°49.8'	S 18°38.1'	278°47.0'	S 14°55.0'	294°59.7'	S 19°17.6'	58°02.9'	S 2°03.7'
17	259°43.8'	77°07.4'	S 1°07.8'	35°49.5'	S 18°39.1'	293°49.6'	S 14°55.1'	310°02.2'	S 19°17.6'	73°03.9'	S 2°04.3'
18	274°46.3'	92°07.6'	S 1°08.8'	50°49.1'	S 18°40.0'	308°52.3'	S 14°55.1'	325°04.8'	S 19°17.7'	88°04.9'	S 2°05.0'
19	289°48.8'	107°07.9'	S 1°09.7'	65°48.8'	S 18°41.0'	323°54.9'	S 14°55.2'	340°07.3'	S 19°17.7'	103°05.8'	S 2°05.6'
20	304°51.2'	122°08.1'	S 1°10.7'	80°48.5'	S 18°42.0'	338°57.6'	S 14°55.2'	355°09.8'	S 19°17.7'	118°06.8'	S 2°06.3'
21	319°53.7'	137°08.3'	S 1°11.7'	95°48.2'	S 18°42.9'	354°00.2'	S 14°55.3'	10°12.3'	S 19°17.7'	133°07.8'	S 2°07.0'
22	334°56.2'	152°08.5'	S 1°12.6'	110°47.8'	S 18°43.9'	9°02.8'	S 14°55.3'	25°14.9'	S 19°17.7'	148°08.8'	S 2°07.6'
23	349°58.6'	167°08.7'	S 1°13.6'	125°47.5'	S 18°44.9'	24°05.5'	S 14°55.4'	40°17.4'	S 19°17.7'	163°09.7'	S 2°08.3'
		SD 15.9' d -1.0'		v -0.3' d -1.0'		v 2.6' d -0.1'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 51 m 36 s		14 h 37 m		21 h 24 m		20 h 19 m		12 h 8 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Betelgeuse	-Capella	-Rigel	-Aldebaran	+Fomalhaut	+Achernar	+Jupiter	+Saturn
0	318°16.9'	N 15°49.2'	14.4'	10.7'	54.4'	43°11.0'	41°18.1'	40°39.2'	22°36.3'	74°15.9'	75°02.1'	84°34.3'	100°41.7'
1	332°50.2'	N 15°59.9'	14.3'	10.7'	54.4'	42°44.4'	40°53.0'	40°22.1'	22°07.5'	74°44.6'	75°18.3'	85°04.4'	101°11.7'
2	347°23.5'	N 16°10.5'	14.3'	10.6'	54.4'	42°17.8'	40°28.1'	40°05.1'	21°38.7'	75°13.3'	75°34.6'	85°34.5'	101°41.7'
3	1°56.8'	N 16°21.1'	14.2'	10.5'	54.4'	41°51.3'	40°03.2'	39°48.4'	21°10.1'	75°42.0'	75°50.9'	86°04.6'	102°11.6'
4	16°30.1'	N 16°31.6'	14.2'	10.4'	54.4'	41°24.9'	39°38.5'	39°31.9'	20°41.4'	76°10.7'	76°07.2'	86°34.6'	102°41.6'
5	31°03.3'	N 16°42.1'	14.2'	10.4'	54.3'	40°58.5'	39°13.8'	39°15.7'	20°12.9'	76°39.4'	76°23.6'	87°04.7'	103°11.5'
6	45°36.4'	N 16°52.4'	14.1'	10.3'	54.3'	40°32.2'	38°49.3'	38°59.6'	19°44.5'	77°08.1'	76°40.0'	87°34.7'	103°41.4'
7	60°09.6'	N 17°02.7'	14.1'	10.2'	54.3'	40°06.0'	38°24.9'	38°43.9'	19°16.1'	77°36.7'	76°56.4'	88°04.7'	104°11.3'
8	74°42.6'	N 17°12.9'	14.0'	10.1'	54.3'	39°39.9'	38°00.7'	38°28.3'	18°47.8'	78°05.4'	77°12.9'	88°34.7'	104°41.1'
9	89°15.7'	N 17°23.1'	14.0'	10.1'	54.3'	39°13.9'	37°36.5'	38°13.0'	18°19.6'	78°34.0'	77°29.4'	89°04.7'	105°11.0'
10	103°48.7'	N 17°33.1'	14.0'	10.0'	54.3'	38°48.0'	37°12.5'		17°51.5'	79°02.7'	77°46.0'	89°34.6'	105°40.9'
11	118°21.6'	N 17°43.1'	13.9'	9.9'	54.3'	38°22.2'	36°48.6'		17°23.5'	79°31.3'	78°02.6'	90°04.6'	106°10.7'
12	132°54.5'	N 17°53.0'	13.9'	9.8'	54.3'	37°56.4'	36°24.8'		16°55.7'	79°60.0'	78°19.2'	90°34.5'	106°40.5'
13	147°27.4'	N 18°02.9'	13.8'	9.8'	54.3'	37°30.8'	36°01.2'		16°27.9'	80°28.6'	78°35.8'	91°04.5'	107°10.3'
14	162°00.3'	N 18°12.6'	13.8'	9.7'	54.3'	37°05.2'	35°37.8'		16°00.3'	80°57.2'	78°52.5'	91°34.4'	107°40.1'
15	176°33.0'	N 18°22.3'	13.7'	9.6'	54.3'	36°39.7'	35°14.4'		15°32.8'	81°25.8'	79°09.2'	92°04.3'	108°09.9'
16	191°05.8'	N 18°31.9'	13.7'	9.5'	54.2'	36°14.4'	34°51.3'		15°05.5'	81°54.4'	79°25.9'	92°34.2'	108°39.7'
17	205°38.5'	N 18°41.4'	13.7'	9.4'	54.2'	35°49.2'	34°28.2'		14°38.4'	82°23.0'	79°42.7'	93°04.1'	109°09.4'
18	220°11.1'	N 18°50.8'	13.6'	9.3'	54.2'	35°24.0'	34°05.4'		14°11.4'	82°51.6'	79°59.5'	93°33.9'	109°39.2'
19	234°43.7'	N 19°00.2'	13.6'	9.3'	54.2'	34°59.0'	33°42.7'		13°44.6'	83°20.1'	80°16.3'	94°03.8'	110°08.9'
20	249°16.3'	N 19°09.5'	13.5'	9.2'	54.2'	34°34.1'	33°20.2'		13°18.1'	83°48.7'	80°33.1'	94°33.7'	110°38.7'
21	263°48.8'	N 19°18.6'	13.5'	9.1'	54.2'	34°09.3'	32°57.8'		12°51.7'	84°17.3'	80°50.0'	95°03.5'	111°08.4'
22	278°21.3'	N 19°27.7'	13.4'	9.0'	54.2'	33°44.7'	32°35.6'		12°25.7'	84°45.8'	81°06.9'	95°33.3'	111°38.1'
23	292°53.7'	N 19°36.7'	13.4'	8.9'	54.2'	33°20.2'	32°13.7'		11°59.9'	85°14.4'	81°23.8'	96°03.1'	112°07.8'
Mer. pass.		2 h 52 m SD 14.8'		phase 85%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°56.9'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	5°01.1'	182°08.9'	S 1°14.6'	140°47.2'	S 18°45.8'	39°08.1'	S 14°55.4'	55°19.9'	S 19°17.8'	178°10.7'	S 2°08.9'
1	20°03.6'	197°09.1'	S 1°15.6'	155°46.8'	S 18°46.8'	54°10.8'	S 14°55.5'	70°22.5'	S 19°17.8'	193°11.7'	S 2°09.6'
2	35°06.0'	212°09.4'	S 1°16.5'	170°46.5'	S 18°47.7'	69°13.4'	S 14°55.6'	85°25.0'	S 19°17.8'	208°12.7'	S 2°10.3'
3	50°08.5'	227°09.6'	S 1°17.5'	185°46.2'	S 18°48.7'	84°16.0'	S 14°55.6'	100°27.5'	S 19°17.8'	223°13.6'	S 2°10.9'
4	65°10.9'	242°09.8'	S 1°18.5'	200°45.8'	S 18°49.7'	99°18.7'	S 14°55.7'	115°30.0'	S 19°17.8'	238°14.6'	S 2°11.6'
5	80°13.4'	257°10.0'	S 1°19.5'	215°45.5'	S 18°50.6'	114°21.3'	S 14°55.7'	130°32.6'	S 19°17.8'	253°15.6'	S 2°12.2'
6	95°15.9'	272°10.2'	S 1°20.4'	230°45.2'	S 18°51.6'	129°24.0'	S 14°55.8'	145°35.1'	S 19°17.9'	268°16.6'	S 2°12.9'
7	110°18.3'	287°10.4'	S 1°21.4'	245°44.9'	S 18°52.6'	144°26.6'	S 14°55.8'	160°37.6'	S 19°17.9'	283°17.5'	S 2°13.6'
8	125°20.8'	302°10.7'	S 1°22.4'	260°44.5'	S 18°53.5'	159°29.2'	S 14°55.9'	175°40.1'	S 19°17.9'	298°18.5'	S 2°14.2'
9	140°23.3'	317°10.9'	S 1°23.4'	275°44.2'	S 18°54.5'	174°31.9'	S 14°55.9'	190°42.7'	S 19°17.9'	313°19.5'	S 2°14.9'
10	155°25.7'	332°11.1'	S 1°24.3'	290°43.9'	S 18°55.4'	189°34.5'	S 14°56.0'	205°45.2'	S 19°17.9'	328°20.4'	S 2°15.5'
11	170°28.2'	347°11.3'	S 1°25.3'	305°43.5'	S 18°56.4'	204°37.1'	S 14°56.0'	220°47.7'	S 19°17.9'	343°21.4'	S 2°16.2'
12	185°30.7'	2°11.5'	S 1°26.3'	320°43.2'	S 18°57.3'	219°39.8'	S 14°56.1'	235°50.2'	S 19°17.9'	358°22.4'	S 2°16.9'
13	200°33.1'	17°11.7'	S 1°27.2'	335°42.9'	S 18°58.3'	234°42.4'	S 14°56.2'	250°52.8'	S 19°18.0'	13°23.4'	S 2°17.5'
14	215°35.6'	32°11.9'	S 1°28.2'	350°42.5'	S 18°59.3'	249°45.1'	S 14°56.2'	265°55.3'	S 19°18.0'	28°24.3'	S 2°18.2'
15	230°38.1'	47°12.1'	S 1°29.2'	5°42.2'	S 19°00.2'	264°47.7'	S 14°56.3'	280°57.8'	S 19°18.0'	43°25.3'	S 2°18.8'
16	245°40.5'	62°12.4'	S 1°30.2'	20°41.9'	S 19°01.2'	279°50.3'	S 14°56.3'	296°00.3'	S 19°18.0'	58°26.3'	S 2°19.5'
17	260°43.0'	77°12.6'	S 1°31.1'	35°41.5'	S 19°02.1'	294°53.0'	S 14°56.4'	311°02.9'	S 19°18.0'	73°27.3'	S 2°20.2'
18	275°45.4'	92°12.8'	S 1°32.1'	50°41.2'	S 19°03.1'	309°55.6'	S 14°56.4'	326°05.4'	S 19°18.0'	88°28.2'	S 2°20.8'
19	290°47.9'	107°13.0'	S 1°33.1'	65°40.9'	S 19°04.0'	324°58.2'	S 14°56.5'	341°07.9'	S 19°18.1'	103°29.2'	S 2°21.5'
20	305°50.4'	122°13.2'	S 1°34.1'	80°40.5'	S 19°05.0'	340°00.9'	S 14°56.5'	356°10.4'	S 19°18.1'	118°30.2'	S 2°22.1'
21	320°52.8'	137°13.4'	S 1°35.0'	95°40.2'	S 19°05.9'	355°03.5'	S 14°56.6'	11°13.0'	S 19°18.1'	133°31.1'	S 2°22.8'
22	335°55.3'	152°13.6'	S 1°36.0'	110°39.9'	S 19°06.9'	10°06.1'	S 14°56.6'	26°15.5'	S 19°18.1'	148°32.1'	S 2°23.5'
23	350°57.8'	167°13.9'	S 1°37.0'	125°39.5'	S 19°07.8'	25°08.8'	S 14°56.7'	41°18.0'	S 19°18.1'	163°33.1'	S 2°24.1'
		SD 15.9'	d -1.0'	v -0.3'	d -1.0'	v 2.6'	d -0.1'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 51 m 15 s		14 h 37 m		21 h 20 m		20 h 15 m		12 h 7 m	

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Sun	-Betelgeuse	-Capella	-Aldebaran	+Achernar	+Fomalhaut	+Jupiter	+Saturn	
0	307°26.1'	N 19°45.7'	13.3'	8.8'	54.2'			32°55.8'	31°51.9'	11°34.4'	81°40.7'	85°42.9'	96°33.0'	112°37.5'
1	321°58.4'	N 19°54.5'	13.3'	8.8'	54.2'			32°31.5'	31°30.3'	11°09.3'	81°57.6'	86°11.4'	97°02.8'	113°07.1'
2	336°30.7'	N 20°03.3'	13.2'	8.7'	54.2'			32°07.4'	31°08.9'	10°44.6'	82°14.6'	86°40.0'	97°32.6'	113°36.8'
3	351°02.9'	N 20°11.9'	13.2'	8.6'	54.2'			31°43.5'	30°47.7'	10°20.3'	82°31.6'	87°08.5'	98°02.3'	114°06.5'
4	5°35.1'	N 20°20.5'	13.1'	8.5'	54.2'			31°19.7'	30°26.8'	9°56.5'	82°48.6'	87°37.0'	98°32.1'	114°36.1'
5	20°07.3'	N 20°29.0'	13.1'	8.4'	54.2'			30°56.0'	30°06.1'	9°33.3'	83°05.6'	88°05.5'	99°01.9'	115°05.8'
6	34°39.4'	N 20°37.4'	13.0'	8.3'	54.2'			30°32.5'	29°45.6'	9°10.7'	83°22.6'	88°34.0'	99°31.6'	115°35.4'
7	49°11.4'	N 20°45.7'	13.0'	8.2'	54.2'			30°09.2'	29°25.3'	8°48.8'	83°39.7'	89°02.5'	100°01.4'	116°05.0'
8	63°43.4'	N 20°53.9'	12.9'	8.1'	54.2'	119°48.8'		29°46.1'	29°05.3'		83°56.8'	89°31.0'	100°31.1'	116°34.7'
9	78°15.4'	N 21°02.1'	12.9'	8.0'	54.2'	119°21.7'		29°23.1'	28°45.6'		84°13.8'	89°59.4'	101°00.9'	117°04.3'
10	92°47.3'	N 21°10.1'	12.8'	7.9'	54.2'	118°54.7'		29°00.3'	28°26.1'		84°30.9'	90°27.9'	101°30.6'	117°33.9'
11	107°19.1'	N 21°18.0'	12.8'	7.8'	54.1'	118°27.6'		28°37.7'	28°06.9'		84°48.0'	90°56.4'	102°00.3'	118°03.5'
12	121°50.9'	N 21°25.9'	12.8'	7.8'	54.1'	118°00.5'		28°15.4'	27°48.0'		85°05.2'	91°24.8'	102°30.1'	118°33.1'
13	136°22.7'	N 21°33.6'	12.7'	7.7'	54.1'	117°33.5'		27°53.2'	27°29.3'		85°22.3'	91°53.3'	102°59.8'	119°02.7'
14	150°54.4'	N 21°41.3'	12.7'	7.6'	54.1'	117°06.5'		27°31.2'	27°11.0'		85°39.4'	92°21.8'	103°29.5'	119°32.2'
15	165°26.0'	N 21°48.9'	12.6'	7.5'	54.1'	116°39.4'		27°09.5'	26°53.0'		85°56.6'	92°50.2'	103°59.2'	
16	179°57.6'	N 21°56.3'	12.6'	7.4'	54.1'	116°12.4'		26°48.0'	26°35.3'		86°13.7'	93°18.7'	104°28.9'	
17	194°29.2'	N 22°03.7'	12.5'	7.3'	54.1'	115°45.3'		26°26.8'	26°17.9'		86°30.9'	93°47.1'	104°58.6'	
18	209°00.7'	N 22°11.0'	12.5'	7.2'	54.1'	115°18.3'		26°05.8'	26°00.9'		86°48.1'	94°15.5'	105°28.3'	
19	223°32.1'	N 22°18.1'	12.4'	7.1'	54.1'	114°51.3'		25°45.1'	25°44.2'		87°05.3'	94°44.0'	105°58.0'	
20	238°03.5'	N 22°25.2'	12.4'	7.0'	54.1'	114°24.3'		25°24.6'	25°27.9'		87°22.5'	95°12.4'	106°27.7'	
21	252°34.9'	N 22°32.2'	12.3'	6.9'	54.1'	113°57.2'		25°04.5'	25°12.0'		87°39.7'	95°40.8'	106°57.3'	
22	267°06.2'	N 22°39.1'	12.3'	6.8'	54.1'	113°30.2'		24°44.6'	24°56.5'		87°56.9'	96°09.2'	107°27.0'	
23	281°37.4'	N 22°45.8'	12.2'	6.7'	54.1'	113°03.2'		24°25.0'			88°14.1'	96°37.6'	107°56.7'	
Mer. pass.		3 h 37 m SD 14.8'		phase 78%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.3'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°56.5'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.1'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	6°00.2'	182°14.1'	S 1°37.9'	140°39.2'	S 19°08.8'	40°11.4'	S 14°56.7'	56°20.5'	S 19°18.1'	178°34.1'	S 2°24.8'
1	21°02.7'	197°14.3'	S 1°38.9'	155°38.8'	S 19°09.7'	55°14.0'	S 14°56.8'	71°23.1'	S 19°18.1'	193°35.0'	S 2°25.4'
2	36°05.2'	212°14.5'	S 1°39.9'	170°38.5'	S 19°10.7'	70°16.7'	S 14°56.9'	86°25.6'	S 19°18.2'	208°36.0'	S 2°26.1'
3	51°07.6'	227°14.7'	S 1°40.9'	185°38.2'	S 19°11.6'	85°19.3'	S 14°56.9'	101°28.1'	S 19°18.2'	223°37.0'	S 2°26.7'
4	66°10.1'	242°14.9'	S 1°41.8'	200°37.8'	S 19°12.5'	100°21.9'	S 14°57.0'	116°30.6'	S 19°18.2'	238°37.9'	S 2°27.4'
5	81°12.6'	257°15.1'	S 1°42.8'	215°37.5'	S 19°13.5'	115°24.6'	S 14°57.0'	131°33.2'	S 19°18.2'	253°38.9'	S 2°28.1'
6	96°15.0'	272°15.3'	S 1°43.8'	230°37.2'	S 19°14.4'	130°27.2'	S 14°57.1'	146°35.7'	S 19°18.2'	268°39.9'	S 2°28.7'
7	111°17.5'	287°15.6'	S 1°44.8'	245°36.8'	S 19°15.4'	145°29.8'	S 14°57.1'	161°38.2'	S 19°18.2'	283°40.9'	S 2°29.4'
8	126°19.9'	302°15.8'	S 1°45.7'	260°36.5'	S 19°16.3'	160°32.4'	S 14°57.2'	176°40.7'	S 19°18.2'	298°41.8'	S 2°30.0'
9	141°22.4'	317°16.0'	S 1°46.7'	275°36.1'	S 19°17.3'	175°35.1'	S 14°57.2'	191°43.2'	S 19°18.3'	313°42.8'	S 2°30.7'
10	156°24.9'	332°16.2'	S 1°47.7'	290°35.8'	S 19°18.2'	190°37.7'	S 14°57.3'	206°45.8'	S 19°18.3'	328°43.8'	S 2°31.4'
11	171°27.3'	347°16.4'	S 1°48.7'	305°35.5'	S 19°19.1'	205°40.3'	S 14°57.3'	221°48.3'	S 19°18.3'	343°44.7'	S 2°32.0'
12	186°29.8'	2°16.6'	S 1°49.6'	320°35.1'	S 19°20.1'	220°43.0'	S 14°57.4'	236°50.8'	S 19°18.3'	358°45.7'	S 2°32.7'
13	201°32.3'	17°16.8'	S 1°50.6'	335°34.8'	S 19°21.0'	235°45.6'	S 14°57.4'	251°53.3'	S 19°18.3'	13°46.7'	S 2°33.3'
14	216°34.7'	32°17.0'	S 1°51.6'	350°34.4'	S 19°21.9'	250°48.2'	S 14°57.5'	266°55.8'	S 19°18.3'	28°47.7'	S 2°34.0'
15	231°37.2'	47°17.3'	S 1°52.5'	5°34.1'	S 19°22.9'	265°50.9'	S 14°57.5'	281°58.4'	S 19°18.3'	43°48.6'	S 2°34.7'
16	246°39.7'	62°17.5'	S 1°53.5'	20°33.8'	S 19°23.8'	280°53.5'	S 14°57.6'	297°00.9'	S 19°18.4'	58°49.6'	S 2°35.3'
17	261°42.1'	77°17.7'	S 1°54.5'	35°33.4'	S 19°24.8'	295°56.1'	S 14°57.6'	312°03.4'	S 19°18.4'	73°50.6'	S 2°36.0'
18	276°44.6'	92°17.9'	S 1°55.5'	50°33.1'	S 19°25.7'	310°58.7'	S 14°57.7'	327°05.9'	S 19°18.4'	88°51.5'	S 2°36.6'
19	291°47.0'	107°18.1'	S 1°56.4'	65°32.7'	S 19°26.6'	326°01.4'	S 14°57.7'	342°08.5'	S 19°18.4'	103°52.5'	S 2°37.3'
20	306°49.5'	122°18.3'	S 1°57.4'	80°32.4'	S 19°27.6'	341°04.0'	S 14°57.8'	357°11.0'	S 19°18.4'	118°53.5'	S 2°38.0'
21	321°52.0'	137°18.5'	S 1°58.4'	95°32.1'	S 19°28.5'	356°06.6'	S 14°57.8'	12°13.5'	S 19°18.4'	133°54.5'	S 2°38.6'
22	336°54.4'	152°18.7'	S 1°59.4'	110°31.7'	S 19°29.4'	11°09.2'	S 14°57.9'	27°16.0'	S 19°18.4'	148°55.4'	S 2°39.3'
23	351°56.9'	167°18.9'	S 2°00.3'	125°31.4'	S 19°30.3'	26°11.9'	S 14°57.9'	42°18.5'	S 19°18.5'	163°56.4'	S 2°39.9'
		SD 15.9' d -1.0'		v -0.3' d -0.9'		v 2.6' d -0.1'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 50 m 55 s		14 h 38 m		21 h 16 m		20 h 11 m		12 h 5 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Achernar	+Fomalhaut	+Jupiter
0	296°08.6'	N 22°52.5'	12.2'	6.6'	54.1'	112°36.2'	47°04.2'	42°19.1'	24°05.8'		88°31.3'	97°06.0'	108°26.4'
1	310°39.8'	N 22°59.1'	12.1'	6.5'	54.1'	112°09.1'	46°38.1'	41°49.6'	23°46.9'		88°48.6'	97°34.4'	108°56.0'
2	325°10.9'	N 23°05.5'	12.1'	6.4'	54.1'	111°42.1'	46°12.0'	41°20.1'	23°28.3'		89°05.8'	98°02.8'	109°25.7'
3	339°42.0'	N 23°11.9'	12.0'	6.3'	54.1'	111°15.1'	45°46.0'	40°50.6'	23°10.1'		89°23.0'	98°31.2'	109°55.4'
4	354°13.0'	N 23°18.2'	12.0'	6.2'	54.1'	110°48.1'	45°20.1'	40°21.1'	22°52.3'		89°40.2'	98°59.6'	110°25.0'
5	8°43.9'	N 23°24.3'	11.9'	6.1'	54.1'	110°21.1'	44°54.2'	39°51.6'	22°34.9'		89°57.5'	99°28.0'	110°54.7'
6	23°14.8'	N 23°30.4'	11.9'	5.9'	54.1'	109°54.0'	44°28.4'	39°22.1'	22°17.8'		90°14.7'	99°56.4'	111°24.4'
7	37°45.7'	N 23°36.3'	11.8'	5.8'	54.1'	109°27.0'	44°02.6'	38°52.6'	22°01.2'		90°31.9'	100°24.8'	111°54.0'
8	52°16.5'	N 23°42.2'	11.8'	5.7'	54.1'	108°60.0'	43°36.9'	38°23.2'	21°45.0'		90°49.2'	100°53.2'	112°23.7'
9	66°47.3'	N 23°47.9'	11.7'	5.6'	54.1'	108°33.0'	43°11.3'	37°53.7'	21°29.3'	8°47.0'	91°06.4'	101°21.6'	112°53.4'
10	81°18.0'	N 23°53.5'	11.7'	5.5'	54.2'	108°05.9'	42°45.8'	37°24.2'		9°08.8'	91°23.6'	101°50.0'	113°23.0'
11	95°48.6'	N 23°59.0'	11.6'	5.4'	54.2'	107°38.9'	42°20.3'	36°54.7'		9°31.4'	91°40.8'	102°18.3'	113°52.7'
12	110°19.3'	N 24°04.4'	11.6'	5.3'	54.2'	107°11.9'	41°54.9'	36°25.2'		9°54.5'	91°58.0'	102°46.7'	114°22.4'
13	124°49.8'	N 24°09.7'	11.5'	5.2'	54.2'	106°44.8'	41°29.5'	35°55.7'		10°18.2'	92°15.3'	103°15.1'	114°52.1'
14	139°20.4'	N 24°14.9'	11.5'	5.1'	54.2'	106°17.8'	41°04.2'	35°26.2'		10°42.3'	92°32.5'	103°43.5'	115°21.7'
15	153°50.8'	N 24°20.0'	11.4'	5.0'	54.2'	105°50.7'	40°39.0'	34°56.7'		11°06.9'	92°49.7'	104°11.8'	115°51.4'
16	168°21.3'	N 24°25.0'	11.4'	4.9'	54.2'	105°23.7'	40°13.9'	34°27.2'		11°31.9'	93°06.9'	104°40.2'	116°21.1'
17	182°51.6'	N 24°29.8'	11.3'	4.7'	54.2'	104°56.6'	39°48.9'	33°57.7'		11°57.3'	93°24.1'	105°08.6'	116°50.8'
18	197°22.0'	N 24°34.5'	11.3'	4.6'	54.2'	104°29.5'	39°23.9'	33°28.3'		12°22.9'	93°41.3'	105°37.0'	117°20.5'
19	211°52.3'	N 24°39.2'	11.2'	4.5'	54.2'	104°02.5'	38°59.1'	32°58.8'		12°48.9'	93°58.4'	106°05.3'	117°50.2'
20	226°22.5'	N 24°43.7'	11.2'	4.4'	54.2'	103°35.4'	38°34.3'	32°29.3'		13°15.1'	94°15.6'	106°33.7'	118°19.9'
21	240°52.7'	N 24°48.1'	11.2'	4.3'	54.2'	103°08.3'	38°09.6'	31°59.8'		13°41.5'	94°32.8'	107°02.1'	118°49.6'
22	255°22.9'	N 24°52.4'	11.1'	4.2'	54.2'	102°41.2'	37°45.0'	31°30.2'		14°08.1'	94°49.9'	107°30.4'	119°19.3'
23	269°53.0'	N 24°56.6'	11.1'	4.1'	54.2'	102°14.1'	37°20.5'	31°00.7'		14°35.0'	95°07.1'	107°58.8'	119°49.0'
Mer. pass.		4 h 24 m SD 14.8'		phase 69%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.8'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.8'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°56.0'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.7'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	6°59.4'	182°19.1'	S 2°01.3'	140°31.0'	S 19°31.3'	41°14.5'	S 14°58.0'	57°21.1'	S 19°18.5'	178°57.4'	S 2°40.6'
1	22°01.8'	197°19.4'	S 2°02.3'	155°30.7'	S 19°32.2'	56°17.1'	S 14°58.0'	72°23.6'	S 19°18.5'	193°58.3'	S 2°41.3'
2	37°04.3'	212°19.6'	S 2°03.2'	170°30.3'	S 19°33.1'	71°19.7'	S 14°58.1'	87°26.1'	S 19°18.5'	208°59.3'	S 2°41.9'
3	52°06.8'	227°19.8'	S 2°04.2'	185°30.0'	S 19°34.1'	86°22.4'	S 14°58.1'	102°28.6'	S 19°18.5'	224°00.3'	S 2°42.6'
4	67°09.2'	242°20.0'	S 2°05.2'	200°29.7'	S 19°35.0'	101°25.0'	S 14°58.2'	117°31.1'	S 19°18.5'	239°01.2'	S 2°43.2'
5	82°11.7'	257°20.2'	S 2°06.2'	215°29.3'	S 19°35.9'	116°27.6'	S 14°58.2'	132°33.6'	S 19°18.5'	254°02.2'	S 2°43.9'
6	97°14.2'	272°20.4'	S 2°07.1'	230°29.0'	S 19°36.8'	131°30.2'	S 14°58.3'	147°36.2'	S 19°18.6'	269°03.2'	S 2°44.5'
7	112°16.6'	287°20.6'	S 2°08.1'	245°28.6'	S 19°37.8'	146°32.9'	S 14°58.3'	162°38.7'	S 19°18.6'	284°04.2'	S 2°45.2'
8	127°19.1'	302°20.8'	S 2°09.1'	260°28.3'	S 19°38.7'	161°35.5'	S 14°58.4'	177°41.2'	S 19°18.6'	299°05.1'	S 2°45.9'
9	142°21.5'	317°21.0'	S 2°10.0'	275°27.9'	S 19°39.6'	176°38.1'	S 14°58.4'	192°43.7'	S 19°18.6'	314°06.1'	S 2°46.5'
10	157°24.0'	332°21.2'	S 2°11.0'	290°27.6'	S 19°40.5'	191°40.7'	S 14°58.5'	207°46.2'	S 19°18.6'	329°07.1'	S 2°47.2'
11	172°26.5'	347°21.5'	S 2°12.0'	305°27.2'	S 19°41.5'	206°43.4'	S 14°58.5'	222°48.8'	S 19°18.6'	344°08.0'	S 2°47.8'
12	187°28.9'	2°21.7'	S 2°13.0'	320°26.9'	S 19°42.4'	221°46.0'	S 14°58.6'	237°51.3'	S 19°18.6'	359°09.0'	S 2°48.5'
13	202°31.4'	17°21.9'	S 2°13.9'	335°26.5'	S 19°43.3'	236°48.6'	S 14°58.6'	252°53.8'	S 19°18.7'	14°10.0'	S 2°49.2'
14	217°33.9'	32°22.1'	S 2°14.9'	350°26.2'	S 19°44.2'	251°51.2'	S 14°58.7'	267°56.3'	S 19°18.7'	29°10.9'	S 2°49.8'
15	232°36.3'	47°22.3'	S 2°15.9'	5°25.8'	S 19°45.1'	266°53.8'	S 14°58.7'	282°58.8'	S 19°18.7'	44°11.9'	S 2°50.5'
16	247°38.8'	62°22.5'	S 2°16.9'	20°25.5'	S 19°46.0'	281°56.5'	S 14°58.8'	298°01.3'	S 19°18.7'	59°12.9'	S 2°51.1'
17	262°41.3'	77°22.7'	S 2°17.8'	35°25.2'	S 19°47.0'	296°59.1'	S 14°58.8'	313°03.9'	S 19°18.7'	74°13.8'	S 2°51.8'
18	277°43.7'	92°22.9'	S 2°18.8'	50°24.8'	S 19°47.9'	312°01.7'	S 14°58.9'	328°06.4'	S 19°18.7'	89°14.8'	S 2°52.5'
19	292°46.2'	107°23.1'	S 2°19.8'	65°24.5'	S 19°48.8'	327°04.3'	S 14°58.9'	343°08.9'	S 19°18.7'	104°15.8'	S 2°53.1'
20	307°48.7'	122°23.3'	S 2°20.7'	80°24.1'	S 19°49.7'	342°06.9'	S 14°59.0'	358°11.4'	S 19°18.7'	119°16.8'	S 2°53.8'
21	322°51.1'	137°23.5'	S 2°21.7'	95°23.8'	S 19°50.6'	357°09.6'	S 14°59.0'	13°13.9'	S 19°18.8'	134°17.7'	S 2°54.4'
22	337°53.6'	152°23.8'	S 2°22.7'	110°23.4'	S 19°51.5'	12°12.2'	S 14°59.1'	28°16.4'	S 19°18.8'	149°18.7'	S 2°55.1'
23	352°56.0'	167°24.0'	S 2°23.7'	125°23.1'	S 19°52.4'	27°14.8'	S 14°59.1'	43°19.0'	S 19°18.8'	164°19.7'	S 2°55.7'
		SD 16.0' d -1.0'		v -0.3' d -0.9'		v 2.6' d -0.0'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 50 m 35 s		14 h 38 m		21 h 11 m		20 h 7 m		12 h 3 m	

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Aldebaran	+Achernar	+Fomalhaut
0	284°23.1'	N 25°00.6'	11.0'	3.9'	54.2'	101°47.0'	66°49.2'	36°56.1'	30°31.2'	15°02.0'	95°24.2'	108°27.2'
1	298°53.1'	N 25°04.6'	11.0'	3.8'	54.2'	101°19.9'	66°19.7'	36°31.8'	30°01.7'	15°29.2'	95°41.3'	108°55.5'
2	313°23.1'	N 25°08.4'	10.9'	3.7'	54.2'	100°52.8'	65°50.2'	36°07.7'	29°32.2'	15°56.5'	95°58.4'	109°23.9'
3	327°53.0'	N 25°12.1'	10.9'	3.6'	54.3'	100°25.7'	65°20.6'	35°43.6'	29°02.7'	16°24.0'	96°15.5'	109°52.2'
4	342°22.9'	N 25°15.7'	10.9'	3.5'	54.3'	99°58.5'	64°51.0'	35°19.6'	28°33.1'	16°51.6'	96°32.6'	110°20.6'
5	356°52.8'	N 25°19.1'	10.8'	3.4'	54.3'	99°31.4'	64°21.5'	34°55.8'	28°03.6'	17°19.3'	96°49.7'	110°49.0'
6	11°22.6'	N 25°22.5'	10.8'	3.2'	54.3'	99°04.3'	63°51.9'	34°32.1'	27°34.1'	17°47.1'	97°06.7'	111°17.3'
7	25°52.4'	N 25°25.7'	10.7'	3.1'	54.3'	98°37.1'	63°22.3'	34°08.5'	27°04.5'	18°15.1'	97°23.7'	111°45.7'
8	40°22.1'	N 25°28.8'	10.7'	3.0'	54.3'	98°09.9'	62°52.7'	33°45.1'	26°35.0'	18°43.1'	97°40.8'	112°14.1'
9	54°51.8'	N 25°31.8'	10.7'	2.9'	54.3'	97°42.7'	62°23.1'	33°21.8'	26°05.4'	19°11.2'	97°57.8'	112°42.4'
10	69°21.5'	N 25°34.7'	10.6'	2.8'	54.3'	97°15.5'	61°53.5'	32°58.6'	25°35.9'	19°39.4'	98°14.7'	113°10.8'
11	83°51.1'	N 25°37.5'	10.6'	2.6'	54.3'	96°48.3'	61°23.9'	32°35.6'	25°06.3'	20°07.7'	98°31.7'	113°39.2'
12	98°20.7'	N 25°40.1'	10.6'	2.5'	54.3'	96°21.1'	60°54.3'	32°12.8'	24°36.8'	20°36.1'	98°48.6'	114°07.5'
13	112°50.2'	N 25°42.6'	10.5'	2.4'	54.4'	95°53.9'	60°24.7'	31°50.1'	24°07.2'	21°04.5'	99°05.6'	114°35.9'
14	127°19.8'	N 25°45.0'	10.5'	2.3'	54.4'	95°26.7'	59°55.0'	31°27.6'	23°37.6'	21°33.0'	99°22.5'	115°04.3'
15	141°49.2'	N 25°47.3'	10.4'	2.1'	54.4'	94°59.4'	59°25.4'	31°05.2'	23°08.1'	22°01.6'	99°39.3'	115°32.6'
16	156°18.7'	N 25°49.4'	10.4'	2.0'	54.4'	94°32.1'	58°55.7'	30°43.0'	22°38.5'	22°30.2'	99°56.2'	116°01.0'
17	170°48.1'	N 25°51.4'	10.4'	1.9'	54.4'	94°04.9'	58°26.0'	30°21.0'	22°08.9'	22°58.9'	100°13.0'	116°29.4'
18	185°17.5'	N 25°53.3'	10.3'	1.8'	54.4'	93°37.6'	57°56.3'	29°59.2'	21°39.3'	23°27.6'	100°29.8'	116°57.8'
19	199°46.8'	N 25°55.1'	10.3'	1.6'	54.4'	93°10.3'	57°26.6'	29°37.6'	21°09.7'	23°56.4'	100°46.6'	117°26.1'
20	214°16.1'	N 25°56.7'	10.3'	1.5'	54.4'	92°42.9'	56°56.9'	29°16.3'	20°40.2'	24°25.3'	101°03.4'	117°54.5'
21	228°45.4'	N 25°58.2'	10.3'	1.4'	54.5'	92°15.6'	56°27.1'	28°55.1'	20°10.6'	24°54.2'	101°20.1'	118°22.9'
22	243°14.7'	N 25°59.6'	10.2'	1.3'	54.5'	91°48.2'	55°57.4'	28°34.2'	19°41.0'	25°23.2'	101°36.8'	118°51.2'
23	257°43.9'	N 26°00.9'	10.2'	1.1'	54.5'	91°20.9'	55°27.6'	28°13.5'	19°11.4'	25°52.2'	101°53.5'	119°19.6'
Mer. pass.		5 h 13 m SD 14.8'			phase 60%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.8'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°55.6'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	7°58.5'	182°24.2'	S 2°24.6'	140°22.7'	S 19°53.4'	42°17.4'	S 14°59.2'	58°21.5'	S 19°18.8'	179°20.6'	S 2°56.4'
1	23°01.0'	197°24.4'	S 2°25.6'	155°22.4'	S 19°54.3'	57°20.0'	S 14°59.2'	73°24.0'	S 19°18.8'	194°21.6'	S 2°57.1'
2	38°03.4'	212°24.6'	S 2°26.6'	170°22.0'	S 19°55.2'	72°22.7'	S 14°59.3'	88°26.5'	S 19°18.8'	209°22.6'	S 2°57.7'
3	53°05.9'	227°24.8'	S 2°27.5'	185°21.7'	S 19°56.1'	87°25.3'	S 14°59.3'	103°29.0'	S 19°18.8'	224°23.5'	S 2°58.4'
4	68°08.4'	242°25.0'	S 2°28.5'	200°21.3'	S 19°57.0'	102°27.9'	S 14°59.4'	118°31.5'	S 19°18.8'	239°24.5'	S 2°59.0'
5	83°10.8'	257°25.2'	S 2°29.5'	215°21.0'	S 19°57.9'	117°30.5'	S 14°59.4'	133°34.0'	S 19°18.9'	254°25.5'	S 2°59.7'
6	98°13.3'	272°25.4'	S 2°30.5'	230°20.6'	S 19°58.8'	132°33.1'	S 14°59.5'	148°36.6'	S 19°18.9'	269°26.4'	S 3°00.4'
7	113°15.8'	287°25.6'	S 2°31.4'	245°20.3'	S 19°59.7'	147°35.7'	S 14°59.5'	163°39.1'	S 19°18.9'	284°27.4'	S 3°01.0'
8	128°18.2'	302°25.8'	S 2°32.4'	260°19.9'	S 20°00.6'	162°38.4'	S 14°59.6'	178°41.6'	S 19°18.9'	299°28.4'	S 3°01.7'
9	143°20.7'	317°26.0'	S 2°33.4'	275°19.6'	S 20°01.5'	177°41.0'	S 14°59.6'	193°44.1'	S 19°18.9'	314°29.3'	S 3°02.3'
10	158°23.2'	332°26.2'	S 2°34.3'	290°19.2'	S 20°02.4'	192°43.6'	S 14°59.6'	208°46.6'	S 19°18.9'	329°30.3'	S 3°03.0'
11	173°25.6'	347°26.4'	S 2°35.3'	305°18.8'	S 20°03.3'	207°46.2'	S 14°59.7'	223°49.1'	S 19°18.9'	344°31.3'	S 3°03.7'
12	188°28.1'	2°26.7'	S 2°36.3'	320°18.5'	S 20°04.2'	222°48.8'	S 14°59.7'	238°51.6'	S 19°18.9'	359°32.2'	S 3°04.3'
13	203°30.5'	17°26.9'	S 2°37.3'	335°18.1'	S 20°05.1'	237°51.4'	S 14°59.8'	253°54.2'	S 19°19.0'	14°33.2'	S 3°05.0'
14	218°33.0'	32°27.1'	S 2°38.2'	350°17.8'	S 20°06.0'	252°54.1'	S 14°59.8'	268°56.7'	S 19°19.0'	29°34.2'	S 3°05.6'
15	233°35.5'	47°27.3'	S 2°39.2'	5°17.4'	S 20°06.9'	267°56.7'	S 14°59.9'	283°59.2'	S 19°19.0'	44°35.1'	S 3°06.3'
16	248°37.9'	62°27.5'	S 2°40.2'	20°17.1'	S 20°07.8'	282°59.3'	S 14°59.9'	299°01.7'	S 19°19.0'	59°36.1'	S 3°06.9'
17	263°40.4'	77°27.7'	S 2°41.1'	35°16.7'	S 20°08.7'	298°01.9'	S 14°60.0'	314°04.2'	S 19°19.0'	74°37.1'	S 3°07.6'
18	278°42.9'	92°27.9'	S 2°42.1'	50°16.4'	S 20°09.6'	313°04.5'	S 15°00.0'	329°06.7'	S 19°19.0'	89°38.0'	S 3°08.3'
19	293°45.3'	107°28.1'	S 2°43.1'	65°16.0'	S 20°10.5'	328°07.1'	S 15°00.1'	344°09.2'	S 19°19.0'	104°39.0'	S 3°08.9'
20	308°47.8'	122°28.3'	S 2°44.1'	80°15.7'	S 20°11.4'	343°09.7'	S 15°00.1'	359°11.7'	S 19°19.0'	119°40.0'	S 3°09.6'
21	323°50.3'	137°28.5'	S 2°45.0'	95°15.3'	S 20°12.3'	358°12.3'	S 15°00.2'	14°14.3'	S 19°19.1'	134°40.9'	S 3°10.2'
22	338°52.7'	152°28.7'	S 2°46.0'	110°15.0'	S 20°13.2'	13°15.0'	S 15°00.2'	29°16.8'	S 19°19.1'	149°41.9'	S 3°10.9'
23	353°55.2'	167°28.9'	S 2°47.0'	125°14.6'	S 20°14.1'	28°17.6'	S 15°00.2'	44°19.3'	S 19°19.1'	164°42.9'	S 3°11.6'
		SD 16.0' d -1.0'		v -0.4' d -0.9'		v 2.6' d -0.0'		v 2.5' d -0.0'		v 1.0' d -0.7'	
Mer. pass.		11 h 50 m 15 s		14 h 39 m		21 h 7 m		20 h 3 m		12 h 2 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Regulus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	272°13.1'	N 26°02.1'	10.2'	1.0'	54.5'	90°53.5'	54°57.9'	27°53.0'	18°41.8'			26°21.2'	37°55.9'
1	286°42.2'	N 26°03.1'	10.1'	0.9'	54.5'	90°26.1'	54°28.1'	27°32.8'	18°12.2'			26°50.3'	38°10.9'
2	301°11.4'	N 26°04.0'	10.1'	0.8'	54.5'	89°58.7'	53°58.3'	27°12.8'	17°42.6'			27°19.5'	38°26.2'
3	315°40.5'	N 26°04.7'	10.1'	0.6'	54.5'	89°31.3'	53°28.5'	26°53.2'	17°13.0'		24°29.4'	27°48.7'	38°41.8'
4	330°09.6'	N 26°05.4'	10.1'	0.5'	54.6'	89°03.8'	52°58.6'	26°33.8'	16°43.5'		24°44.5'	28°17.9'	38°57.6'
5	344°38.6'	N 26°05.9'	10.0'	0.4'	54.6'	88°36.3'	52°28.8'	26°14.7'	16°13.9'		24°59.9'	28°47.1'	39°13.6'
6	359°07.7'	N 26°06.2'	10.0'	0.3'	54.6'	88°08.9'	51°58.9'	25°55.9'	15°44.3'		25°15.8'	29°16.5'	39°29.9'
7	13°36.7'	N 26°06.5'	10.0'	0.1'	54.6'	87°41.3'	51°29.0'	25°37.5'	15°14.8'	21°13.8'	25°32.0'	29°45.8'	39°46.4'
8	28°05.7'	N 26°06.6'	10.0'	-0.0'	54.6'	87°13.8'	50°59.1'	25°19.4'	14°45.2'	21°29.3'	25°48.7'	30°15.2'	40°03.2'
9	42°34.6'	N 26°06.6'	9.9'	-0.1'	54.6'	86°46.3'	50°29.2'	25°01.6'	14°15.7'	21°45.3'	26°05.7'	30°44.6'	40°20.1'
10	57°03.6'	N 26°06.5'	9.9'	-0.3'	54.7'	86°18.7'	49°59.3'	24°44.2'	13°46.2'	22°01.8'	26°23.2'	31°14.1'	40°37.3'
11	71°32.5'	N 26°06.2'	9.9'	-0.4'	54.7'	85°51.1'	49°29.4'	24°27.1'	13°16.7'	22°18.8'	26°40.9'	31°43.6'	40°54.7'
12	86°01.4'	N 26°05.8'	9.9'	-0.5'	54.7'	85°23.5'	48°59.4'	24°10.5'	12°47.3'	22°36.1'	26°59.1'	32°13.1'	41°12.4'
13	100°30.3'	N 26°05.3'	9.9'	-0.7'	54.7'	84°55.9'	48°29.4'	23°54.2'	12°17.9'	22°54.0'	27°17.5'	32°42.7'	41°30.2'
14	114°59.2'	N 26°04.6'	9.9'	-0.8'	54.7'	84°28.3'	47°59.4'	23°38.4'	11°48.5'	23°12.2'	27°36.3'	33°12.3'	41°48.2'
15	129°28.0'	N 26°03.8'	9.8'	-0.9'	54.8'	84°00.6'	47°29.4'		11°19.2'	23°30.8'	27°55.5'	33°41.9'	42°06.5'
16	143°56.9'	N 26°02.9'	9.8'	-1.0'	54.8'	83°32.9'	46°59.4'		10°49.9'	23°49.8'	28°14.9'	34°11.6'	42°24.9'
17	158°25.7'	N 26°01.9'	9.8'	-1.2'	54.8'	83°05.2'	46°29.3'		10°20.7'	24°09.2'	28°34.6'	34°41.3'	42°43.6'
18	172°54.5'	N 26°00.7'	9.8'	-1.3'	54.8'	82°37.5'	45°59.2'		9°51.6'	24°29.0'	28°54.6'	35°11.1'	43°02.4'
19	187°23.3'	N 25°59.4'	9.8'	-1.4'	54.8'	82°09.7'	45°29.1'		9°22.6'	24°49.1'	29°15.0'	35°40.9'	43°21.4'
20	201°52.1'	N 25°58.0'	9.8'	-1.6'	54.9'	81°42.0'	44°59.0'		8°53.7'	25°09.5'	29°35.5'	36°10.7'	43°40.6'
21	216°20.9'	N 25°56.4'	9.8'	-1.7'	54.9'	81°14.2'	44°28.9'		8°24.9'	25°30.3'	29°56.4'	36°40.5'	43°60.0'
22	230°49.6'	N 25°54.7'	9.8'	-1.8'	54.9'	80°46.4'	43°58.7'		7°56.4'	25°51.3'	30°17.5'	37°10.4'	44°19.5'
23	245°18.4'	N 25°52.8'	9.7'	-2.0'	54.9'	80°18.5'	43°28.6'		7°28.0'	26°12.7'	30°38.9'	37°40.4'	44°39.3'
Mer. pass.		6 h 4 m SD 14.9'		phase 51%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.8'	N 5°10.3'	Polaris	+2.0	314°55.2'	N 89°21.1'
Rigil Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	8°57.6'	182°29.1'	S 2°47.9'	140°14.2'	S 20°15.0'	43°20.2'	S 15°00.3'	59°21.8'	S 19°19.1'	179°43.8'	S 3°12.2'
1	24°00.1'	197°29.3'	S 2°48.9'	155°13.9'	S 20°15.9'	58°22.8'	S 15°00.3'	74°24.3'	S 19°19.1'	194°44.8'	S 3°12.9'
2	39°02.6'	212°29.5'	S 2°49.9'	170°13.5'	S 20°16.8'	73°25.4'	S 15°00.4'	89°26.8'	S 19°19.1'	209°45.8'	S 3°13.5'
3	54°05.0'	227°29.7'	S 2°50.8'	185°13.2'	S 20°17.7'	88°28.0'	S 15°00.4'	104°29.3'	S 19°19.1'	224°46.7'	S 3°14.2'
4	69°07.5'	242°29.9'	S 2°51.8'	200°12.8'	S 20°18.6'	103°30.6'	S 15°00.5'	119°31.8'	S 19°19.1'	239°47.7'	S 3°14.8'
5	84°10.0'	257°30.1'	S 2°52.8'	215°12.5'	S 20°19.5'	118°33.2'	S 15°00.5'	134°34.3'	S 19°19.2'	254°48.7'	S 3°15.5'
6	99°12.4'	272°30.4'	S 2°53.8'	230°12.1'	S 20°20.3'	133°35.8'	S 15°00.6'	149°36.9'	S 19°19.2'	269°49.6'	S 3°16.2'
7	114°14.9'	287°30.6'	S 2°54.7'	245°11.7'	S 20°21.2'	148°38.4'	S 15°00.6'	164°39.4'	S 19°19.2'	284°50.6'	S 3°16.8'
8	129°17.4'	302°30.8'	S 2°55.7'	260°11.4'	S 20°22.1'	163°41.1'	S 15°00.6'	179°41.9'	S 19°19.2'	299°51.6'	S 3°17.5'
9	144°19.8'	317°31.0'	S 2°56.7'	275°11.0'	S 20°23.0'	178°43.7'	S 15°00.7'	194°44.4'	S 19°19.2'	314°52.5'	S 3°18.1'
10	159°22.3'	332°31.2'	S 2°57.6'	290°10.7'	S 20°23.9'	193°46.3'	S 15°00.7'	209°46.9'	S 19°19.2'	329°53.5'	S 3°18.8'
11	174°24.8'	347°31.4'	S 2°58.6'	305°10.3'	S 20°24.8'	208°48.9'	S 15°00.8'	224°49.4'	S 19°19.2'	344°54.5'	S 3°19.5'
12	189°27.2'	2°31.6'	S 2°59.6'	320°09.9'	S 20°25.7'	223°51.5'	S 15°00.8'	239°51.9'	S 19°19.2'	359°55.4'	S 3°20.1'
13	204°29.7'	17°31.8'	S 3°00.6'	335°09.6'	S 20°26.5'	238°54.1'	S 15°00.9'	254°54.4'	S 19°19.2'	14°56.4'	S 3°20.8'
14	219°32.1'	32°32.0'	S 3°01.5'	350°09.2'	S 20°27.4'	253°56.7'	S 15°00.9'	269°56.9'	S 19°19.3'	29°57.4'	S 3°21.4'
15	234°34.6'	47°32.2'	S 3°02.5'	5°08.9'	S 20°28.3'	268°59.3'	S 15°01.0'	284°59.4'	S 19°19.3'	44°58.3'	S 3°22.1'
16	249°37.1'	62°32.4'	S 3°03.5'	20°08.5'	S 20°29.2'	284°01.9'	S 15°01.0'	300°01.9'	S 19°19.3'	59°59.3'	S 3°22.7'
17	264°39.5'	77°32.6'	S 3°04.4'	35°08.1'	S 20°30.1'	299°04.5'	S 15°01.0'	315°04.5'	S 19°19.3'	75°00.2'	S 3°23.4'
18	279°42.0'	92°32.8'	S 3°05.4'	50°07.8'	S 20°30.9'	314°07.1'	S 15°01.1'	330°07.0'	S 19°19.3'	90°01.2'	S 3°24.1'
19	294°44.5'	107°33.0'	S 3°06.4'	65°07.4'	S 20°31.8'	329°09.7'	S 15°01.1'	345°09.5'	S 19°19.3'	105°02.2'	S 3°24.7'
20	309°46.9'	122°33.2'	S 3°07.3'	80°07.1'	S 20°32.7'	344°12.3'	S 15°01.2'	0°12.0'	S 19°19.3'	120°03.1'	S 3°25.4'
21	324°49.4'	137°33.4'	S 3°08.3'	95°06.7'	S 20°33.6'	359°14.9'	S 15°01.2'	15°14.5'	S 19°19.3'	135°04.1'	S 3°26.0'
22	339°51.9'	152°33.6'	S 3°09.3'	110°06.3'	S 20°34.4'	14°17.5'	S 15°01.3'	30°17.0'	S 19°19.3'	150°05.1'	S 3°26.7'
23	354°54.3'	167°33.8'	S 3°10.3'	125°06.0'	S 20°35.3'	29°20.2'	S 15°01.3'	45°19.5'	S 19°19.4'	165°06.0'	S 3°27.3'
		SD 16.0'	d -1.0'	v -0.4'	d -0.9'	v 2.6'	d -0.0'	v 2.5'	d -0.0'	v 1.0'	d -0.7'
Mer. pass.		11 h 49 m 55 s		14 h 39 m		21 h 3 m		19 h 59 m		12 h 0 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Acrux	-Sun	-Regulus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	259°47.1'	N 25°50.9'	9.7'	-2.1'	54.9'		79°50.6'	42°58.4'	6°59.9'	26°34.3'	31°00.5'	38°10.3'	44°59.2'
1	274°15.8'	N 25°48.8'	9.7'	-2.2'	55.0'		79°22.7'	42°28.2'	6°32.1'	26°56.3'	31°22.3'	38°40.3'	45°19.3'
2	288°44.6'	N 25°46.6'	9.7'	-2.4'	55.0'		78°54.8'	41°57.9'	6°04.7'	27°18.5'	31°44.4'	39°10.3'	45°39.5'
3	303°13.3'	N 25°44.2'	9.7'	-2.5'	55.0'		78°26.9'	41°27.7'	5°37.8'	27°41.0'	32°06.7'	39°40.4'	45°59.9'
4	317°42.0'	N 25°41.7'	9.7'	-2.6'	55.0'		77°58.9'	40°57.4'		28°03.7'	32°29.2'	40°10.5'	46°20.5'
5	332°10.7'	N 25°39.1'	9.7'	-2.8'	55.0'		77°30.9'	40°27.1'		28°26.6'	32°51.9'	40°40.6'	46°41.2'
6	346°39.4'	N 25°36.3'	9.7'	-2.9'	55.1'		77°02.9'	39°56.8'		28°49.8'	33°14.9'	41°10.8'	47°02.1'
7	1°08.1'	N 25°33.4'	9.7'	-3.0'	55.1'		76°34.8'	39°26.4'		29°13.3'	33°38.0'	41°41.0'	47°23.1'
8	15°36.8'	N 25°30.4'	9.7'	-3.1'	55.1'		76°06.8'	38°56.1'		29°36.9'	34°01.3'	42°11.2'	47°44.3'
9	30°05.5'	N 25°27.3'	9.7'	-3.3'	55.1'		75°38.7'	38°25.7'		30°00.8'	34°24.8'	42°41.5'	48°05.6'
10	44°34.2'	N 25°24.0'	9.7'	-3.4'	55.2'		75°10.5'	37°55.3'		30°24.8'	34°48.5'	43°11.8'	48°27.1'
11	59°02.9'	N 25°20.6'	9.7'	-3.5'	55.2'		74°42.4'	37°24.8'		30°49.1'	35°12.4'	43°42.1'	48°48.7'
12	73°31.6'	N 25°17.0'	9.7'	-3.7'	55.2'		74°14.2'	36°54.4'		31°13.5'	35°36.5'	44°12.5'	49°10.5'
13	88°00.3'	N 25°13.4'	9.7'	-3.8'	55.2'	104°07.3'	73°46.0'	36°23.9'		31°38.2'	36°00.7'	44°42.9'	49°32.4'
14	102°29.0'	N 25°09.6'	9.7'	-3.9'	55.3'	103°50.6'	73°17.7'	35°53.4'		32°03.0'	36°25.1'	45°13.4'	49°54.4'
15	116°57.7'	N 25°05.6'	9.7'	-4.1'	55.3'	103°33.7'	72°49.5'	35°22.9'		32°28.0'	36°49.6'	45°43.8'	50°16.6'
16	131°26.4'	N 25°01.5'	9.7'	-4.2'	55.3'	103°16.8'	72°21.2'	34°52.4'		32°53.2'	37°14.3'	46°14.4'	50°38.9'
17	145°55.1'	N 24°57.3'	9.7'	-4.3'	55.3'	102°59.9'	71°52.8'	34°21.8'		33°18.5'	37°39.2'	46°44.9'	51°01.3'
18	160°23.9'	N 24°53.0'	9.7'	-4.5'	55.4'	102°42.9'	71°24.5'	33°51.2'		33°44.0'	38°04.2'	47°15.5'	51°23.9'
19	174°52.6'	N 24°48.5'	9.7'	-4.6'	55.4'	102°25.8'	70°56.1'	33°20.6'		34°09.7'	38°29.4'	47°46.1'	51°46.5'
20	189°21.3'	N 24°43.9'	9.7'	-4.7'	55.4'	102°08.6'	70°27.6'	32°50.0'		34°35.5'	38°54.7'	48°16.8'	52°09.3'
21	203°50.1'	N 24°39.2'	9.7'	-4.9'	55.4'	101°51.4'	69°59.2'	32°19.3'		35°01.4'	39°20.1'	48°47.5'	52°32.3'
22	218°18.8'	N 24°34.4'	9.8'	-5.0'	55.5'	101°34.2'	69°30.7'	31°48.7'	5°33.1'	35°27.5'	39°45.7'	49°18.2'	52°55.3'
23	232°47.6'	N 24°29.4'	9.8'	-5.1'	55.5'	101°16.8'	69°02.2'	31°18.0'	6°00.4'	35°53.8'	40°11.4'	49°49.0'	53°18.5'
Mer. pass.		6 h 55 m SD 15.0'	phase 41%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.2'	S 29°30.5'	Spica	+1.0	158°25.5'	S 11°16.3'	Betelgeuse	+0.5	270°55.0'	N 7°24.7'
Deneb	+1.2	49°27.4'	N 45°21.7'	Acrux	+0.8	173°03.7'	S 63°13.0'	Capella	+0.1	280°25.7'	N 46°01.0'
Altair	+0.8	62°02.5'	N 8°55.7'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°06.4'	S 8°10.5'
Vega	+0.0	80°35.0'	N 38°48.5'	Pollux	+1.2	243°20.7'	N 27°58.4'	Aldebaran	+0.9	290°42.6'	N 16°33.2'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°53.7'	N 5°10.3'	Polaris	+2.0	314°54.8'	N 89°21.1'
Rigel Kent	-0.0	139°44.5'	S 60°55.5'	Adhara	+1.5	255°08.0'	S 28°59.8'	Achernar	+0.5	335°21.7'	S 57°07.5'
Arcturus	-0.1	145°50.7'	N 19°04.4'	Sirius	-1.4	258°28.6'	S 16°44.5'				
Hadar	+0.6	148°40.4'	S 60°28.6'	Canopus	-0.6	263°53.6'	S 52°42.1'				