

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	340°36.9'	179°59.9' N 8°11.2'	224°46.5'	N 19°22.3'	51°26.7'	S 22°40.8'	42°35.6'	S 21°13.9'	313°29.1'	N 6°37.9'		
1	355°39.4'	195°00.1' N 8°10.3'	239°46.2'	N 19°22.0'	66°29.3'	S 22°40.8'	57°38.2'	S 21°13.9'	328°31.2'	N 6°38.0'		
2	10°41.9'	210°00.3' N 8°09.4'	254°45.8'	N 19°21.8'	81°31.8'	S 22°40.8'	72°40.8'	S 21°14.0'	343°33.4'	N 6°38.1'		
3	25°44.3'	225°00.5' N 8°08.5'	269°45.5'	N 19°21.5'	96°34.4'	S 22°40.9'	87°43.4'	S 21°14.0'	358°35.6'	N 6°38.3'		
4	40°46.8'	240°00.7' N 8°07.6'	284°45.2'	N 19°21.2'	111°36.9'	S 22°40.9'	102°45.9'	S 21°14.0'	13°37.7'	N 6°38.4'		
5	55°49.3'	255°00.9' N 8°06.7'	299°44.8'	N 19°20.9'	126°39.5'	S 22°40.9'	117°48.5'	S 21°14.0'	28°39.9'	N 6°38.5'		
6	70°51.7'	270°01.1' N 8°05.7'	314°44.5'	N 19°20.7'	141°42.1'	S 22°40.9'	132°51.1'	S 21°14.0'	43°42.1'	N 6°38.6'		
7	85°54.2'	285°01.3' N 8°04.8'	329°44.1'	N 19°20.4'	156°44.6'	S 22°40.9'	147°53.7'	S 21°14.1'	58°44.3'	N 6°38.7'		
8	100°56.7'	300°01.5' N 8°03.9'	344°43.8'	N 19°20.1'	171°47.2'	S 22°40.9'	162°56.2'	S 21°14.1'	73°46.4'	N 6°38.8'		
9	115°59.1'	315°01.7' N 8°03.0'	359°43.4'	N 19°19.8'	186°49.8'	S 22°40.9'	177°58.8'	S 21°14.1'	88°48.6'	N 6°38.9'		
10	131°01.6'	330°01.9' N 8°02.1'	14°43.1' N 19°19.6'	201°52.3' S 22°41.0'	193°01.4' S 21°14.1'	103°50.8' N 6°39.0'						
11	146°04.0'	345°02.1' N 8°01.2'	29°42.7' N 19°19.3'	216°54.9' S 22°41.0'	208°04.0' S 21°14.2'	118°53.0' N 6°39.1'						
12	161°06.5'	0°02.3' N 8°00.3'	44°42.4' N 19°19.0'	231°57.5' S 22°41.0'	223°06.5' S 21°14.2'	133°55.2' N 6°39.2'						
13	176°09.0'	15°02.5' N 7°59.4'	59°42.0' N 19°18.7'	247°00.0' S 22°41.0'	238°09.1' S 21°14.2'	148°57.3' N 6°39.3'						
14	191°11.4'	30°02.7' N 7°58.5'	74°41.7' N 19°18.4'	262°02.6' S 22°41.0'	253°11.7' S 21°14.2'	163°59.5' N 6°39.4'						
15	206°13.9'	45°02.9' N 7°57.6'	89°41.3' N 19°18.2'	277°05.1' S 22°41.0'	268°14.3' S 21°14.2'	179°01.7' N 6°39.5'						
16	221°16.4'	60°03.1' N 7°56.7'	104°41.0' N 19°17.9'	292°07.7' S 22°41.0'	283°16.8' S 21°14.3'	194°03.9' N 6°39.6'						
17	236°18.8'	75°03.3' N 7°55.7'	119°40.6' N 19°17.6'	307°10.3' S 22°41.1'	298°19.4' S 21°14.3'	209°06.1' N 6°39.7'						
18	251°21.3'	90°03.5' N 7°54.8'	134°40.2' N 19°17.3'	322°12.8' S 22°41.1'	313°22.0' S 21°14.3'	224°08.3' N 6°39.8'						
19	266°23.8'	105°03.7' N 7°53.9'	149°39.9' N 19°17.0'	337°15.4' S 22°41.1'	328°24.6' S 21°14.3'	239°10.5' N 6°39.9'						
20	281°26.2'	120°03.9' N 7°53.0'	164°39.5' N 19°16.7'	352°17.9' S 22°41.1'	343°27.1' S 21°14.4'	254°12.6' N 6°40.0'						
21	296°28.7'	135°04.1' N 7°52.1'	179°39.2' N 19°16.4'	7°20.5' S 22°41.1'	358°29.7' S 21°14.4'	269°14.8' N 6°40.1'						
22	311°31.1'	150°04.3' N 7°51.2'	194°38.8' N 19°16.1'	22°23.1' S 22°41.1'	13°32.3' S 21°14.4'	284°17.0' N 6°40.2'						
23	326°33.6'	165°04.5' N 7°50.3'	209°38.5' N 19°15.9'	37°25.6' S 22°41.1'	28°34.9' S 21°14.4'	299°19.2' N 6°40.2'						
		SD 15.8' d -0.9'	v -0.4' d -0.3'	v 2.6' d -0.0'	v 2.6' d -0.0'	v 2.2' d 0.1'						
Mer. pass.		11 h 59 m 51 s	9 h 1 m	20 h 31 m	21 h 6 m	3 h 6 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	11°48.4'	S 17°12.9'	12.3'	9.3'	55.4'	106°24.1'	104°30.8'	62°21.0'	19°02.4'	29°18.0'	37°33.0'	40°10.3'	74°43.1'
1	26°19.7'	S 17°03.5'	12.4'	9.4'	55.3'	105°57.5'	103°59.6'	61°50.1'		29°49.2'	38°04.2'	40°28.1'	75°14.1'
2	40°51.1'	S 16°54.1'	12.5'	9.5'	55.3'	105°30.9'	103°28.5'	61°19.2'		30°20.4'	38°35.5'	40°46.0'	75°45.1'
3	55°22.6'	S 16°44.6'	12.5'	9.6'	55.3'	105°04.3'	102°57.5'	60°48.4'		30°51.6'	39°06.7'	41°04.2'	76°16.1'
4	69°54.1'	S 16°35.1'	12.6'	9.6'	55.3'	104°37.7'	102°26.4'	60°17.6'		31°22.7'	39°37.9'	41°22.6'	76°47.0'
5	84°25.7'	S 16°25.5'	12.7'	9.7'	55.3'	104°11.1'	101°55.4'	59°46.7'		31°53.9'	40°09.1'	41°41.1'	77°18.0'
6	98°57.4'	S 16°15.8'	12.7'	9.8'	55.3'	103°44.5'	101°24.3'	59°15.9'		32°25.0'	40°40.3'	41°59.9'	77°48.9'
7	113°29.1'	S 16°06.0'	12.8'	9.8'	55.2'	103°17.9'	100°53.3'	58°45.2'		32°56.1'	41°11.4'	42°18.8'	78°19.8'
8	128°00.9'	S 15°56.2'	12.9'	9.9'	55.2'	102°51.3'	100°22.4'	58°14.4'		33°27.2'	41°42.6'	42°38.0'	78°50.7'
9	142°32.8'	S 15°46.3'	12.9'	10.0'	55.2'	102°24.7'	99°51.4'	57°43.7'		33°58.3'	42°13.7'	42°57.3'	79°21.6'
10	157°04.7'	S 15°36.3'	13.0'	10.0'	55.2'	101°58.1'	99°20.5'	57°12.9'		34°29.3'	42°44.8'	43°16.7'	79°52.4'
11	171°36.7'	S 15°26.3'	13.1'	10.1'	55.2'	101°31.5'	98°49.5'	56°42.2'		35°00.4'	43°15.9'	43°36.4'	80°23.2'
12	186°08.8'	S 15°16.2'	13.1'	10.2'	55.1'	101°04.9'	98°18.6'	56°11.5'		35°31.4'	43°46.9'	43°56.2'	80°54.1'
13	200°41.0'	S 15°06.1'	13.2'	10.2'	55.1'	100°38.3'	97°47.7'	55°40.9'		36°02.4'	44°18.0'	44°16.1'	81°24.9'
14	215°13.2'	S 14°55.8'	13.3'	10.3'	55.1'	100°11.7'	97°16.8'	55°10.2'		36°33.4'	44°49.0'	44°36.3'	81°55.6'
15	229°45.5'	S 14°45.6'	13.3'	10.3'	55.1'	99°45.1'	96°46.0'	54°39.6'		37°04.4'	45°20.0'	44°56.5'	82°26.4'
16	244°17.8'	S 14°35.2'	13.4'	10.4'	55.1'	99°18.5'	96°15.2'	54°08.9'		37°35.3'	45°51.0'	45°16.9'	82°57.2'
17	258°50.2'	S 14°24.8'	13.5'	10.4'	55.1'	98°51.9'	95°44.3'	53°38.3'		38°06.3'	46°21.9'	45°37.5'	83°27.9'
18	273°22.7'	S 14°14.4'	13.5'	10.5'	55.0'	98°25.3'	95°13.5'	53°07.8'		38°37.2'	46°52.9'	45°58.2'	83°58.6'
19	287°55.2'	S 14°03.9'	13.6'	10.6'	55.0'	97°58.7'	94°42.8'	52°37.2'		39°08.1'	47°23.8'	46°19.0'	84°29.3'
20	302°27.8'	S 13°53.3'	13.7'	10.6'	55.0'	97°32.2'	94°12.0'	52°06.6'		39°39.0'	47°54.7'	46°40.0'	84°60.0'
21	317°00.5'	S 13°42.7'	13.7'	10.7'	55.0'	97°05.6'	93°41.3'	51°36.1'		40°09.9'	48°25.6'	47°01.0'	85°30.6'
22	331°33.2'	S 13°32.1'	13.8'	10.7'	55.0'	96°39.0'	93°10.5'	51°05.6'		40°40.7'	48°56.5'	47°22.2'	86°01.2'
23	346°06.0'	S 13°21.3'	13.9'	10.8'	55.0'	96°12.5'	92°39.8'	50°35.1'		41°11.6'	49°27.4'	47°43.6'	86°31.9'
Mer. pass.		23 h 57 m SD 15.1' phase 98%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.2'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	N 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°26.1'	N 89°20.7'
Rigel Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	341°36.1'	180°04.7'	N 7°49.4'	224°38.1'	N 19°15.6'	52°28.2'	S 22°41.2'	43°37.4'	S 21°14.5'	314°21.4'	N 6°40.3'
1	356°38.5'	195°04.9'	N 7°48.4'	239°37.8'	N 19°15.3'	67°30.7'	S 22°41.2'	58°40.0'	S 21°14.5'	329°23.6'	N 6°40.4'
2	11°41.0'	210°05.1'	N 7°47.5'	254°37.4'	N 19°15.0'	82°33.3'	S 22°41.2'	73°42.6'	S 21°14.5'	344°25.8'	N 6°40.5'
3	26°43.5'	225°05.3'	N 7°46.6'	269°37.1'	N 19°14.7'	97°35.8'	S 22°41.2'	88°45.2'	S 21°14.5'	359°28.0'	N 6°40.6'
4	41°45.9'	240°05.5'	N 7°45.7'	284°36.7'	N 19°14.4'	112°38.4'	S 22°41.2'	103°47.7'	S 21°14.5'	14°30.2'	N 6°40.7'
5	56°48.4'	255°05.7'	N 7°44.8'	299°36.4'	N 19°14.1'	127°41.0'	S 22°41.2'	118°50.3'	S 21°14.6'	29°32.4'	N 6°40.8'
6	71°50.9'	270°05.9'	N 7°43.9'	314°36.0'	N 19°13.8'	142°43.5'	S 22°41.2'	133°52.9'	S 21°14.6'	44°34.6'	N 6°40.9'
7	86°53.3'	285°06.1'	N 7°43.0'	329°35.6'	N 19°13.5'	157°46.1'	S 22°41.3'	148°55.5'	S 21°14.6'	59°36.8'	N 6°41.0'
8	101°55.8'	300°06.3'	N 7°42.0'	344°35.3'	N 19°13.2'	172°48.6'	S 22°41.3'	163°58.0'	S 21°14.6'	74°39.1'	N 6°41.1'
9	116°58.3'	315°06.5'	N 7°41.1'	359°34.9'	N 19°12.9'	187°51.2'	S 22°41.3'	179°00.6'	S 21°14.6'	89°41.3'	N 6°41.2'
10	132°00.7'	330°06.7'	N 7°40.2'	14°34.6'	N 19°12.6'	202°53.7'	S 22°41.3'	194°03.2'	S 21°14.7'	104°43.5'	N 6°41.3'
11	147°03.2'	345°06.9'	N 7°39.3'	29°34.2'	N 19°12.3'	217°56.3'	S 22°41.3'	209°05.8'	S 21°14.7'	119°45.7'	N 6°41.4'
12	162°05.6'	0°07.1'	N 7°38.4'	44°33.9'	N 19°12.0'	232°58.8'	S 22°41.3'	224°08.3'	S 21°14.7'	134°47.9'	N 6°41.5'
13	177°08.1'	15°07.3'	N 7°37.5'	59°33.5'	N 19°11.7'	248°01.4'	S 22°41.3'	239°10.9'	S 21°14.7'	149°50.1'	N 6°41.5'
14	192°10.6'	30°07.6'	N 7°36.6'	74°33.1'	N 19°11.4'	263°04.0'	S 22°41.4'	254°13.5'	S 21°14.8'	164°52.3'	N 6°41.6'
15	207°13.0'	45°07.8'	N 7°35.6'	89°32.8'	N 19°11.1'	278°06.5'	S 22°41.4'	269°16.0'	S 21°14.8'	179°54.6'	N 6°41.7'
16	222°15.5'	60°08.0'	N 7°34.7'	104°32.4'	N 19°10.8'	293°09.1'	S 22°41.4'	284°18.6'	S 21°14.8'	194°56.8'	N 6°41.8'
17	237°18.0'	75°08.2'	N 7°33.8'	119°32.1'	N 19°10.5'	308°11.6'	S 22°41.4'	299°21.2'	S 21°14.8'	209°59.0'	N 6°41.9'
18	252°20.4'	90°08.4'	N 7°32.9'	134°31.7'	N 19°10.2'	323°14.2'	S 22°41.4'	314°23.8'	S 21°14.8'	225°01.2'	N 6°42.0'
19	267°22.9'	105°08.6'	N 7°32.0'	149°31.3'	N 19°09.9'	338°16.7'	S 22°41.4'	329°26.3'	S 21°14.9'	240°03.4'	N 6°42.1'
20	282°25.4'	120°08.8'	N 7°31.1'	164°31.0'	N 19°09.6'	353°19.3'	S 22°41.4'	344°28.9'	S 21°14.9'	255°05.7'	N 6°42.2'
21	297°27.8'	135°09.0'	N 7°30.1'	179°30.6'	N 19°09.3'	8°21.8'	S 22°41.4'	359°31.5'	S 21°14.9'	270°07.9'	N 6°42.3'
22	312°30.3'	150°09.2'	N 7°29.2'	194°30.3'	N 19°08.9'	23°24.4'	S 22°41.5'	14°34.0'	S 21°14.9'	285°10.1'	N 6°42.3'
23	327°32.8'	165°09.4'	N 7°28.3'	209°29.9'	N 19°08.6'	38°26.9'	S 22°41.5'	29°36.6'	S 21°15.0'	300°12.3'	N 6°42.4'
		SD 15.8' d -0.9'		v -0.4' d -0.3'		v 2.6' d -0.0'		v 2.6' d -0.0'		v 2.2' d 0.1'	
Mer. pass.		11 h 59 m 32 s		9 h 2 m		20 h 27 m		21 h 2 m		3 h 2 m	

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Altair	+Jupiter
0	0°38.9'	S 13°10.6'	13.9'	10.8'	54.9'	105°22.2'	95°45.9'	92°09.1'	50°04.6'	41°42.4'	48°05.0'	49°58.2'
1	15°11.8'	S 12°59.7'	14.0'	10.9'	54.9'	104°54.1'	95°19.4'	91°38.5'	49°34.1'	42°13.2'	48°26.6'	50°29.0'
2	29°44.8'	S 12°48.9'	14.0'	10.9'	54.9'	104°26.0'	94°52.9'	91°07.8'	49°03.7'	42°44.0'	48°48.2'	50°59.8'
3	44°17.8'	S 12°37.9'	14.1'	11.0'	54.9'	103°58.0'	94°26.4'	90°37.2'	48°33.2'	43°14.8'	49°10.0'	51°30.6'
4	58°50.9'	S 12°27.0'	14.2'	11.0'	54.9'	103°29.9'	93°59.9'	90°06.5'	48°02.8'	43°45.5'	49°31.9'	52°01.4'
5	73°24.0'	S 12°16.0'	14.2'	11.1'	54.9'	103°01.8'	93°33.4'	89°35.9'	47°32.4'	44°16.2'	49°53.9'	52°32.1'
6	87°57.2'	S 12°04.9'	14.3'	11.1'	54.9'	102°33.7'	93°06.9'	89°05.4'	47°02.0'	44°47.0'	50°15.9'	53°02.9'
7	102°30.5'	S 11°53.8'	14.3'	11.2'	54.8'	102°05.7'	92°40.4'	88°34.8'	46°31.6'	45°17.7'	50°38.1'	53°33.6'
8	117°03.8'	S 11°42.6'	14.4'	11.2'	54.8'	101°37.6'	92°13.9'	88°04.2'	46°01.3'	45°48.4'	51°00.4'	54°04.3'
9	131°37.2'	S 11°31.4'	14.4'	11.2'	54.8'	101°09.6'	91°47.5'	87°33.7'	45°30.9'	46°19.0'	51°22.7'	54°35.0'
10	146°10.6'	S 11°20.2'	14.5'	11.3'	54.8'	100°41.5'	91°21.1'	87°03.2'	45°00.6'	46°49.7'	51°45.2'	55°05.6'
11	160°44.1'	S 11°08.9'	14.5'	11.3'	54.8'	100°13.5'	90°54.6'	86°32.7'	44°30.3'	47°20.3'	52°07.7'	55°36.3'
12	175°17.7'	S 10°57.6'	14.6'	11.4'	54.8'	99°45.5'	90°28.2'	86°02.2'	44°00.0'	47°50.9'	52°30.3'	56°06.9'
13	189°51.3'	S 10°46.3'	14.6'	11.4'	54.7'	99°17.5'	90°01.8'	85°31.7'	43°29.7'	18°53.7'	48°21.5'	52°53.0'
14	204°24.9'	S 10°34.9'	14.7'	11.4'	54.7'	98°49.5'	89°35.5'	85°01.3'	42°59.5'	19°08.7'	48°52.1'	53°15.8'
15	218°58.6'	S 10°23.4'	14.8'	11.5'	54.7'	98°21.5'	89°09.1'	84°30.9'	42°29.2'	19°24.3'	49°22.7'	53°38.6'
16	233°32.4'	S 10°12.0'	14.8'	11.5'	54.7'	97°53.5'	88°42.7'	84°00.5'	41°59.0'	19°40.5'	49°53.2'	54°01.6'
17	248°06.2'	S 10°00.4'	14.9'	11.5'	54.7'	97°25.5'	88°16.4'	83°30.1'	41°28.8'	19°57.2'	50°23.8'	54°24.6'
18	262°40.0'	S 9°48.9'	14.9'	11.6'	54.7'	96°57.5'	87°50.1'	82°59.7'	40°58.6'	20°14.3'	50°54.3'	54°47.6'
19	277°13.9'	S 9°37.3'	14.9'	11.6'	54.7'	96°29.6'	87°23.8'	82°29.3'	40°28.4'	20°32.0'	51°24.8'	55°10.8'
20	291°47.9'	S 9°25.7'	15.0'	11.6'	54.6'	96°01.6'	86°57.5'	81°59.0'	39°58.2'	20°50.1'	51°55.3'	55°34.0'
21	306°21.9'	S 9°14.1'	15.0'	11.7'	54.6'	95°33.7'	86°31.3'	81°28.6'	39°28.0'	21°08.7'	52°25.8'	55°57.2'
22	320°55.9'	S 9°02.4'	15.1'	11.7'	54.6'	95°05.7'	86°05.0'	80°58.3'	38°57.9'	21°27.7'	52°56.2'	56°20.5'
23	335°30.0'	S 8°50.7'	15.1'	11.7'	54.6'	94°37.8'	85°38.8'	80°28.0'	38°27.8'	21°47.0'	53°26.7'	56°43.9'
Mer. pass.		0 h 41 m SD 15.0'		phase 100%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°25.7'	N 89°20.7'
Rigil Kent	-0.0	139°45.3'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.2'	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	342°35.2'	180°09.6'	N 7°27.4'	224°29.5'	N 19°08.3'		53°29.5'	S 22°41.5'		44°39.2'	S 21°15.0'		315°14.6'	N 6°42.5'				
1	357°37.7'	195°09.8'	N 7°26.5'	239°29.2'	N 19°08.0'		68°32.0'	S 22°41.5'		59°41.8'	S 21°15.0'		330°16.8'	N 6°42.6'				
2	12°40.1'	210°10.0'	N 7°25.6'	254°28.8'	N 19°07.7'		83°34.6'	S 22°41.5'		74°44.3'	S 21°15.0'		345°19.0'	N 6°42.7'				
3	27°42.6'	225°10.2'	N 7°24.6'	269°28.5'	N 19°07.4'		98°37.1'	S 22°41.5'		89°46.9'	S 21°15.0'		0°21.3'	N 6°42.8'				
4	42°45.1'	240°10.4'	N 7°23.7'	284°28.1'	N 19°07.1'		113°39.7'	S 22°41.5'		104°49.5'	S 21°15.1'		15°23.5'	N 6°42.9'				
5	57°47.5'	255°10.6'	N 7°22.8'	299°27.7'	N 19°06.8'		128°42.2'	S 22°41.5'		119°52.0'	S 21°15.1'		30°25.7'	N 6°42.9'				
6	72°50.0'	270°10.8'	N 7°21.9'	314°27.4'	N 19°06.4'		143°44.8'	S 22°41.6'		134°54.6'	S 21°15.1'		45°28.0'	N 6°43.0'				
7	87°52.5'	285°11.0'	N 7°21.0'	329°27.0'	N 19°06.1'		158°47.3'	S 22°41.6'		149°57.2'	S 21°15.1'		60°30.2'	N 6°43.1'				
8	102°54.9'	300°11.2'	N 7°20.0'	344°26.6'	N 19°05.8'		173°49.9'	S 22°41.6'		164°59.8'	S 21°15.1'		75°32.5'	N 6°43.2'				
9	117°57.4'	315°11.5'	N 7°19.1'	359°26.3'	N 19°05.5'		188°52.4'	S 22°41.6'		180°02.3'	S 21°15.2'		90°34.7'	N 6°43.3'				
10	132°59.9'	330°11.7'	N 7°18.2'	14°25.9'	N 19°05.2'		203°54.9'	S 22°41.6'		195°04.9'	S 21°15.2'		105°37.0'	N 6°43.4'				
11	148°02.3'	345°11.9'	N 7°17.3'	29°25.5'	N 19°04.8'		218°57.5'	S 22°41.6'		210°07.5'	S 21°15.2'		120°39.2'	N 6°43.4'				
12	163°04.8'	0°12.1'	N 7°16.4'	44°25.2'	N 19°04.5'		234°00.0'	S 22°41.6'		225°10.0'	S 21°15.2'		135°41.4'	N 6°43.5'				
13	178°07.2'	15°12.3'	N 7°15.4'	59°24.8'	N 19°04.2'		249°02.6'	S 22°41.6'		240°12.6'	S 21°15.3'		150°43.7'	N 6°43.6'				
14	193°09.7'	30°12.5'	N 7°14.5'	74°24.5'	N 19°03.9'		264°05.1'	S 22°41.7'		255°15.2'	S 21°15.3'		165°45.9'	N 6°43.7'				
15	208°12.2'	45°12.7'	N 7°13.6'	89°24.1'	N 19°03.5'		279°07.7'	S 22°41.7'		270°17.7'	S 21°15.3'		180°48.2'	N 6°43.8'				
16	223°14.6'	60°12.9'	N 7°12.7'	104°23.7'	N 19°03.2'		294°10.2'	S 22°41.7'		285°20.3'	S 21°15.3'		195°50.4'	N 6°43.8'				
17	238°17.1'	75°13.1'	N 7°11.8'	119°23.4'	N 19°02.9'		309°12.8'	S 22°41.7'		300°22.9'	S 21°15.3'		210°52.7'	N 6°43.9'				
18	253°19.6'	90°13.3'	N 7°10.8'	134°23.0'	N 19°02.6'		324°15.3'	S 22°41.7'		315°25.4'	S 21°15.4'		225°55.0'	N 6°44.0'				
19	268°22.0'	105°13.5'	N 7°09.9'	149°22.6'	N 19°02.2'		339°17.8'	S 22°41.7'		330°28.0'	S 21°15.4'		240°57.2'	N 6°44.1'				
20	283°24.5'	120°13.7'	N 7°09.0'	164°22.3'	N 19°01.9'		354°20.4'	S 22°41.7'		345°30.6'	S 21°15.4'		255°59.5'	N 6°44.1'				
21	298°27.0'	135°13.9'	N 7°08.1'	179°21.9'	N 19°01.6'		9°22.9'	S 22°41.7'		0°33.1'	S 21°15.4'		271°01.7'	N 6°44.2'				
22	313°29.4'	150°14.1'	N 7°07.2'	194°21.5'	N 19°01.2'		24°25.5'	S 22°41.8'		15°35.7'	S 21°15.4'		286°04.0'	N 6°44.3'				
23	328°31.9'	165°14.4'	N 7°06.2'	209°21.2'	N 19°00.9'		39°28.0'	S 22°41.8'		30°38.3'	S 21°15.5'		301°06.3'	N 6°44.4'				
		SD 15.8'	d -0.9'		v -0.4'	d -0.3'		v 2.5'	d -0.0'		v 2.6'	d -0.0'		v 2.2'	d 0.1'			
Mer. pass.		11 h 59 m 12 s		9 h 2 m			20 h 23 m			20 h 58 m			2 h 59 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	350°04.1'	S 8°39.0'	15.2'	11.8'	54.6'	94°09.9'	85°12.6'	79°57.7'	37°57.7'	22°06.8'	53°57.1'	57°07.4'	62°13.1'
1	4°38.3'	S 8°27.2'	15.2'	11.8'	54.6'	93°42.0'	84°46.4'	79°27.5'	37°27.6'	22°26.9'	54°27.5'	57°30.9'	62°43.5'
2	19°12.5'	S 8°15.4'	15.3'	11.8'	54.6'	93°14.1'	84°20.2'	78°57.2'	36°57.5'	22°47.4'	54°57.9'	57°54.4'	63°13.9'
3	33°46.8'	S 8°03.6'	15.3'	11.8'	54.6'	92°46.3'	83°54.1'	78°27.0'	36°27.4'	23°08.2'	55°28.3'	58°18.1'	63°44.3'
4	48°21.1'	S 7°51.8'	15.3'	11.9'	54.5'	92°18.4'	83°28.0'	77°56.8'	35°57.4'	23°29.4'	55°58.6'	58°41.7'	64°14.7'
5	62°55.4'	S 7°39.9'	15.4'	11.9'	54.5'	91°50.5'	83°01.9'	77°26.6'	35°27.3'	23°50.8'	56°29.0'	59°05.4'	64°45.0'
6	77°29.8'	S 7°28.0'	15.4'	11.9'	54.5'	91°22.7'	82°35.8'	76°56.4'	34°57.3'	24°12.5'	56°59.3'	59°29.2'	65°15.3'
7	92°04.3'	S 7°16.1'	15.5'	11.9'	54.5'	90°54.9'	82°09.7'	76°26.2'	34°27.3'	24°34.5'	57°29.6'	59°53.0'	65°45.7'
8	106°38.7'	S 7°04.2'	15.5'	12.0'	54.5'	90°27.1'	81°43.7'	75°56.1'	33°57.3'	24°56.7'	57°60.0'	60°16.9'	66°16.0'
9	121°13.2'	S 6°52.2'	15.5'	12.0'	54.5'	89°59.3'	81°17.7'	75°25.9'	33°27.3'	25°19.2'	58°30.2'	60°40.8'	66°46.2'
10	135°47.8'	S 6°40.2'	15.6'	12.0'	54.5'	89°31.5'	80°51.7'	74°55.8'	32°57.3'	25°42.0'	59°00.5'	61°04.7'	67°16.5'
11	150°22.4'	S 6°28.2'	15.6'	12.0'	54.4'	89°03.7'	80°25.7'	74°25.7'	32°27.4'	26°04.9'	59°30.8'	61°28.7'	67°46.8'
12	164°57.0'	S 6°16.2'	15.7'	12.0'	54.4'	88°36.0'	79°59.8'	73°55.6'	31°57.4'	26°28.1'	60°01.0'	61°52.7'	68°17.0'
13	179°31.6'	S 6°04.1'	15.7'	12.1'	54.4'	88°08.2'	79°33.8'	73°25.5'	31°27.5'	26°51.4'	60°31.3'	62°16.8'	68°47.2'
14	194°06.3'	S 5°52.1'	15.7'	12.1'	54.4'	87°40.5'	79°08.0'	72°55.5'	30°57.6'	27°15.0'	61°01.5'	62°40.9'	69°17.4'
15	208°41.0'	S 5°40.0'	15.8'	12.1'	54.4'	87°12.8'	78°42.1'	72°25.4'	30°27.7'	27°38.8'	61°31.7'	63°05.0'	69°47.6'
16	223°15.8'	S 5°27.9'	15.8'	12.1'	54.4'	86°45.1'	78°16.3'	71°55.4'	29°57.8'	28°02.7'	62°01.9'	63°29.2'	70°17.8'
17	237°50.6'	S 5°15.8'	15.8'	12.1'	54.4'	86°17.4'	77°50.4'	71°25.4'	29°27.9'	28°26.8'	62°32.0'	63°53.4'	70°48.0'
18	252°25.4'	S 5°03.7'	15.8'	12.1'	54.4'	85°49.8'	77°24.7'	70°55.4'	28°58.0'	28°51.1'	63°02.2'	64°17.7'	71°18.1'
19	267°00.2'	S 4°51.5'	15.9'	12.2'	54.4'	85°22.1'	76°58.9'	70°25.4'	28°28.2'	29°15.5'	63°32.3'	64°42.0'	71°48.3'
20	281°35.1'	S 4°39.4'	15.9'	12.2'	54.3'	84°54.5'	76°33.2'	69°55.4'	27°58.3'	29°40.0'	64°02.5'	65°06.3'	72°18.4'
21	296°10.0'	S 4°27.2'	15.9'	12.2'	54.3'	84°26.9'	76°07.5'	69°25.5'	27°28.5'	30°04.7'	64°32.6'	65°30.6'	72°48.5'
22	310°44.9'	S 4°15.0'	16.0'	12.2'	54.3'	83°59.3'	75°41.8'	68°55.5'	26°58.7'	30°29.6'	65°02.7'	65°55.0'	73°18.6'
23	325°19.9'	S 4°02.8'	16.0'	12.2'	54.3'	83°31.7'	75°16.2'	68°25.6'	26°28.9'	30°54.5'	65°32.8'	66°19.4'	73°48.7'
Mer. pass.		0 h 41 m SD 14.9'	phase 99%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°25.3'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.3'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.2'	S 52°42.1'				

h	Aries	Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	343°34.4'	180°14.6'	N 7°05.3'	224°20.8'	N 19°00.6'	54°30.6'	S 22°41.8'	45°40.8'	S 21°15.5'	316°08.5'	N 6°44.5'	
1	358°36.8'	195°14.8'	N 7°04.4'	239°20.4'	N 19°00.2'	69°33.1'	S 22°41.8'	60°43.4'	S 21°15.5'	331°10.8'	N 6°44.5'	
2	13°39.3'	210°15.0'	N 7°03.5'	254°20.1'	N 18°59.9'	84°35.6'	S 22°41.8'	75°46.0'	S 21°15.5'	346°13.0'	N 6°44.6'	
3	28°41.7'	225°15.2'	N 7°02.5'	269°19.7'	N 18°59.6'	99°38.2'	S 22°41.8'	90°48.5'	S 21°15.5'	1°15.3'	N 6°44.7'	
4	43°44.2'	240°15.4'	N 7°01.6'	284°19.3'	N 18°59.2'	114°40.7'	S 22°41.8'	105°51.1'	S 21°15.6'	16°17.6'	N 6°44.8'	
5	58°46.7'	255°15.6'	N 7°00.7'	299°18.9'	N 18°58.9'	129°43.3'	S 22°41.8'	120°53.7'	S 21°15.6'	31°19.9'	N 6°44.8'	
6	73°49.1'	270°15.8'	N 6°59.8'	314°18.6'	N 18°58.6'	144°45.8'	S 22°41.8'	135°56.2'	S 21°15.6'	46°22.1'	N 6°44.9'	
7	88°51.6'	285°16.0'	N 6°58.8'	329°18.2'	N 18°58.2'	159°48.3'	S 22°41.9'	150°58.8'	S 21°15.6'	61°24.4'	N 6°45.0'	
8	103°54.1'	300°16.2'	N 6°57.9'	344°17.8'	N 18°57.9'	174°50.9'	S 22°41.9'	166°01.4'	S 21°15.7'	76°26.7'	N 6°45.1'	
9	118°56.5'	315°16.4'	N 6°57.0'	359°17.5'	N 18°57.5'	189°53.4'	S 22°41.9'	181°03.9'	S 21°15.7'	91°29.0'	N 6°45.1'	
10	133°59.0'	330°16.6'	N 6°56.1'	14°17.1'	N 18°57.2'	204°56.0'	S 22°41.9'	196°06.5'	S 21°15.7'	106°31.2'	N 6°45.2'	
11	149°01.5'	345°16.9'	N 6°55.1'	29°16.7'	N 18°56.9'	219°58.5'	S 22°41.9'	211°09.1'	S 21°15.7'	121°33.5'	N 6°45.3'	
12	164°03.9'	0°17.1'	N 6°54.2'	44°16.4'	N 18°56.5'	235°01.0'	S 22°41.9'	226°11.6'	S 21°15.7'	136°35.8'	N 6°45.3'	
13	179°06.4'	15°17.3'	N 6°53.3'	59°16.0'	N 18°56.2'	250°03.6'	S 22°41.9'	241°14.2'	S 21°15.8'	151°38.1'	N 6°45.4'	
14	194°08.8'	30°17.5'	N 6°52.4'	74°15.6'	N 18°55.8'	265°06.1'	S 22°41.9'	256°16.8'	S 21°15.8'	166°40.4'	N 6°45.5'	
15	209°11.3'	45°17.7'	N 6°51.4'	89°15.2'	N 18°55.5'	280°08.6'	S 22°42.0'	271°19.3'	S 21°15.8'	181°42.6'	N 6°45.6'	
16	224°13.8'	60°17.9'	N 6°50.5'	104°14.9'	N 18°55.1'	295°11.2'	S 22°42.0'	286°21.9'	S 21°15.8'	196°44.9'	N 6°45.6'	
17	239°16.2'	75°18.1'	N 6°49.6'	119°14.5'	N 18°54.8'	310°13.7'	S 22°42.0'	301°24.5'	S 21°15.8'	211°47.2'	N 6°45.7'	
18	254°18.7'	90°18.3'	N 6°48.7'	134°14.1'	N 18°54.4'	325°16.2'	S 22°42.0'	316°27.0'	S 21°15.9'	226°49.5'	N 6°45.8'	
19	269°21.2'	105°18.5'	N 6°47.7'	149°13.8'	N 18°54.1'	340°18.8'	S 22°42.0'	331°29.6'	S 21°15.9'	241°51.8'	N 6°45.8'	
20	284°23.6'	120°18.7'	N 6°46.8'	164°13.4'	N 18°53.7'	355°21.3'	S 22°42.0'	346°32.2'	S 21°15.9'	256°54.1'	N 6°45.9'	
21	299°26.1'	135°19.0'	N 6°45.9'	179°13.0'	N 18°53.4'	10°23.8'	S 22°42.0'	1°34.7'	S 21°15.9'	271°56.4'	N 6°46.0'	
22	314°28.6'	150°19.2'	N 6°45.0'	194°12.6'	N 18°53.0'	25°26.4'	S 22°42.0'	16°37.3'	S 21°15.9'	286°58.7'	N 6°46.0'	
23	329°31.0'	165°19.4'	N 6°44.0'	209°12.3'	N 18°52.7'	40°28.9'	S 22°42.0'	31°39.9'	S 21°16.0'	302°01.0'	N 6°46.1'	
		SD 15.9' d -0.9'		v -0.4' d -0.3'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 2.3' d 0.1'		
Mer. pass.		11 h 58 m 52 s		9 h 3 m		20 h 19 m		20 h 54 m		2 h 55 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	339°54.9'	S 3°50.6'	16.0'	12.2'	54.3'	83°04.1'	74°50.6'	67°55.7'	25°59.1'	31°19.6'	66°02.9'	66°43.8'	74°18.8'
1	354°29.9'	S 3°38.4'	16.0'	12.2'	54.3'	82°36.5'	74°25.0'	67°25.7'	25°29.3'	31°44.8'	66°32.9'	67°08.3'	74°48.8'
2	9°04.9'	S 3°26.2'	16.1'	12.2'	54.3'	82°09.0'	73°59.4'	66°55.9'	24°59.5'	32°10.1'	67°03.0'	67°32.8'	75°18.9'
3	23°40.0'	S 3°14.0'	16.1'	12.2'	54.3'	81°41.5'	73°33.9'	66°26.0'	24°29.8'	32°35.6'	67°33.0'	67°57.3'	75°48.9'
4	38°15.0'	S 3°01.8'	16.1'	12.2'	54.3'	81°14.0'	73°08.4'	65°56.1'	24°00.0'	33°01.1'	68°03.0'	68°21.8'	76°18.9'
5	52°50.1'	S 2°49.5'	16.1'	12.2'	54.3'	80°46.5'	72°43.0'	65°26.3'	23°30.3'	33°26.7'	68°33.1'	68°46.4'	76°48.9'
6	67°25.3'	S 2°37.3'	16.1'	12.3'	54.2'	80°19.0'	72°17.6'	64°56.4'	23°00.5'	33°52.4'	69°03.1'	69°11.0'	77°18.9'
7	82°00.4'	S 2°25.0'	16.2'	12.3'	54.2'	79°51.6'	71°52.2'	64°26.6'	22°30.8'	34°18.2'	69°33.1'	69°35.6'	77°48.9'
8	96°35.6'	S 2°12.8'	16.2'	12.3'	54.2'	79°24.2'	71°26.8'	63°56.8'	22°01.1'	34°44.1'	70°03.0'	70°00.2'	78°18.8'
9	111°10.8'	S 2°00.5'	16.2'	12.3'	54.2'	78°56.8'	71°01.5'	63°27.0'	21°31.4'	35°10.1'	70°33.0'	70°24.8'	78°48.8'
10	125°46.0'	S 1°48.2'	16.2'	12.3'	54.2'	78°29.4'	70°36.2'	62°57.2'	21°01.7'	35°36.2'	71°02.9'	70°49.5'	79°18.7'
11	140°21.2'	S 1°36.0'	16.2'	12.3'	54.2'	78°02.0'	70°11.0'	62°27.4'	20°32.1'	36°02.3'	71°32.9'	71°14.2'	79°48.7'
12	154°56.4'	S 1°23.7'	16.2'	12.3'	54.2'	77°34.6'	69°45.8'	61°57.7'	20°02.4'	36°28.5'	72°02.8'	71°38.9'	80°18.6'
13	169°31.6'	S 1°11.4'	16.3'	12.3'	54.2'	77°07.3'	69°20.6'	61°27.9'	19°32.8'	36°54.8'	72°32.7'	72°03.6'	80°48.5'
14	184°06.9'	S 0°59.2'	16.3'	12.3'	54.2'	76°40.0'	68°55.5'	60°58.2'	19°03.1'	37°21.1'	73°02.7'	72°28.3'	81°18.4'
15	198°42.2'	S 0°46.9'	16.3'	12.3'	54.2'	76°12.7'	68°30.4'	60°28.5'	18°33.5'	37°47.5'	73°32.5'	72°53.1'	81°48.3'
16	213°17.5'	S 0°34.6'	16.3'	12.3'	54.2'	75°45.4'	68°05.3'	59°58.7'	18°03.8'	38°14.0'	74°02.4'	73°17.8'	82°18.1'
17	227°52.8'	S 0°22.4'	16.3'	12.3'	54.1'	75°18.2'	67°40.3'	59°29.0'	17°34.2'	38°40.5'	74°32.3'	73°42.6'	82°48.0'
18	242°28.1'	S 0°10.1'	16.3'	12.3'	54.1'	74°50.9'	67°15.3'	58°59.3'	17°04.6'	39°07.1'	75°02.2'	74°07.4'	83°17.8'
19	257°03.4'	N 0°02.2'	16.3'	12.3'	54.1'	74°23.7'	66°50.4'	58°29.7'	16°35.0'	39°33.8'	75°32.0'	74°32.2'	83°47.7'
20	271°38.7'	N 0°14.4'	16.3'	12.3'	54.1'	73°56.5'	66°25.5'	57°60.0'	16°05.4'	40°00.5'	76°01.9'	74°57.0'	84°17.5'
21	286°14.1'	N 0°26.7'	16.3'	12.2'	54.1'	73°29.4'	66°00.7'	57°30.3'	15°35.9'	40°27.2'	76°31.7'	75°21.9'	84°47.3'
22	300°49.4'	N 0°38.9'	16.4'	12.2'	54.1'	73°02.2'	65°35.9'	57°00.7'	15°06.3'	40°54.0'	77°01.5'	75°46.7'	85°17.1'
23	315°24.8'	N 0°51.2'	16.4'	12.2'	54.1'	72°35.1'	65°11.1'	56°31.1'	14°36.7'	41°20.8'	77°31.4'	76°11.6'	85°46.9'
Mer. pass.		1 h 23 m SD 14.8'		phase 97%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.1'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°24.9'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.2'	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	344°33.5'	180°19.6'	N 6°43.1'	224°11.9'	N 18°52.3'		55°31.4'	S 22°42.0'		46°42.4'	S 21°16.0'		317°03.3'	N 6°46.2'				
1	359°36.0'	195°19.8'	N 6°42.2'	239°11.5'	N 18°52.0'		70°34.0'	S 22°42.1'		61°45.0'	S 21°16.0'		332°05.6'	N 6°46.2'				
2	14°38.4'	210°20.0'	N 6°41.3'	254°11.1'	N 18°51.6'		85°36.5'	S 22°42.1'		76°47.5'	S 21°16.0'		347°07.9'	N 6°46.3'				
3	29°40.9'	225°20.2'	N 6°40.3'	269°10.8'	N 18°51.3'		100°39.0'	S 22°42.1'		91°50.1'	S 21°16.0'		2°10.2'	N 6°46.4'				
4	44°43.3'	240°20.4'	N 6°39.4'	284°10.4'	N 18°50.9'		115°41.6'	S 22°42.1'		106°52.7'	S 21°16.1'		17°12.5'	N 6°46.4'				
5	59°45.8'	255°20.6'	N 6°38.5'	299°10.0'	N 18°50.6'		130°44.1'	S 22°42.1'		121°55.2'	S 21°16.1'		32°14.8'	N 6°46.5'				
6	74°48.3'	270°20.8'	N 6°37.5'	314°09.6'	N 18°50.2'		145°46.6'	S 22°42.1'		136°57.8'	S 21°16.1'		47°17.1'	N 6°46.6'				
7	89°50.7'	285°21.1'	N 6°36.6'	329°09.3'	N 18°49.8'		160°49.2'	S 22°42.1'		152°00.4'	S 21°16.1'		62°19.4'	N 6°46.6'				
8	104°53.2'	300°21.3'	N 6°35.7'	344°08.9'	N 18°49.5'		175°51.7'	S 22°42.1'		167°02.9'	S 21°16.1'		77°21.7'	N 6°46.7'				
9	119°55.7'	315°21.5'	N 6°34.8'	359°08.5'	N 18°49.1'		190°54.2'	S 22°42.1'		182°05.5'	S 21°16.2'		92°24.0'	N 6°46.7'				
10	134°58.1'	330°21.7'	N 6°33.8'	14°08.1'	N 18°48.8'		205°56.8'	S 22°42.2'		197°08.0'	S 21°16.2'		107°26.3'	N 6°46.8'				
11	150°00.6'	345°21.9'	N 6°32.9'	29°07.8'	N 18°48.4'		220°59.3'	S 22°42.2'		212°10.6'	S 21°16.2'		122°28.6'	N 6°46.9'				
12	165°03.1'	0°22.1'	N 6°32.0'	44°07.4'	N 18°48.0'		236°01.8'	S 22°42.2'		227°13.2'	S 21°16.2'		137°30.9'	N 6°46.9'				
13	180°05.5'	15°22.3'	N 6°31.0'	59°07.0'	N 18°47.7'		251°04.3'	S 22°42.2'		242°15.7'	S 21°16.2'		152°33.3'	N 6°47.0'				
14	195°08.0'	30°22.5'	N 6°30.1'	74°06.6'	N 18°47.3'		266°06.9'	S 22°42.2'		257°18.3'	S 21°16.3'		167°35.6'	N 6°47.1'				
15	210°10.4'	45°22.7'	N 6°29.2'	89°06.3'	N 18°46.9'		281°09.4'	S 22°42.2'		272°20.9'	S 21°16.3'		182°37.9'	N 6°47.1'				
16	225°12.9'	60°23.0'	N 6°28.2'	104°05.9'	N 18°46.6'		296°11.9'	S 22°42.2'		287°23.4'	S 21°16.3'		197°40.2'	N 6°47.2'				
17	240°15.4'	75°23.2'	N 6°27.3'	119°05.5'	N 18°46.2'		311°14.5'	S 22°42.2'		302°26.0'	S 21°16.3'		212°42.5'	N 6°47.2'				
18	255°17.8'	90°23.4'	N 6°26.4'	134°05.1'	N 18°45.8'		326°17.0'	S 22°42.2'		317°28.5'	S 21°16.3'		227°44.9'	N 6°47.3'				
19	270°20.3'	105°23.6'	N 6°25.5'	149°04.7'	N 18°45.5'		341°19.5'	S 22°42.2'		332°31.1'	S 21°16.4'		242°47.2'	N 6°47.3'				
20	285°22.8'	120°23.8'	N 6°24.5'	164°04.4'	N 18°45.1'		356°22.0'	S 22°42.3'		347°33.7'	S 21°16.4'		257°49.5'	N 6°47.4'				
21	300°25.2'	135°24.0'	N 6°23.6'	179°04.0'	N 18°44.7'		11°24.6'	S 22°42.3'		2°36.2'	S 21°16.4'		272°51.8'	N 6°47.5'				
22	315°27.7'	150°24.2'	N 6°22.7'	194°03.6'	N 18°44.3'		26°27.1'	S 22°42.3'		17°38.8'	S 21°16.4'		287°54.2'	N 6°47.5'				
23	330°30.2'	165°24.4'	N 6°21.7'	209°03.2'	N 18°44.0'		41°29.6'	S 22°42.3'		32°41.3'	S 21°16.4'		302°56.5'	N 6°47.6'				
		SD 15.9' d -0.9'		v -0.4' d -0.4'			v 2.5' d -0.0'			v 2.6' d -0.0'			v 2.3' d 0.1'					
Mer. pass.		11 h 58 m 32 s		9 h 3 m			20 h 15 m			20 h 50 m			2 h 51 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	330°00.1'	N 1°03.4'	16.4'	12.2'	54.1'	72°08.0'	64°46.4'	56°01.4'	14°07.2'	41°47.7'	76°36.4'	78°01.2'	86°16.7'
1	344°35.5'	N 1°15.6'	16.4'	12.2'	54.1'	71°40.9'	64°21.7'	55°31.8'	13°37.6'	42°14.6'	77°01.3'	78°31.0'	86°46.5'
2	359°10.9'	N 1°27.8'	16.4'	12.2'	54.1'	71°13.9'	63°57.1'	55°02.2'	13°08.1'	42°41.6'	77°26.2'	79°00.7'	87°16.3'
3	13°46.2'	N 1°40.0'	16.4'	12.2'	54.1'	70°46.8'	63°32.5'	54°32.6'	12°38.5'	43°08.6'	77°51.1'	79°30.5'	87°46.0'
4	28°21.6'	N 1°52.2'	16.4'	12.2'	54.1'	70°19.8'	63°08.0'	54°03.0'	12°09.0'	43°35.7'	78°16.0'	80°00.3'	88°15.8'
5	42°57.0'	N 2°04.4'	16.4'	12.2'	54.1'	69°52.8'	62°43.5'	53°33.5'	11°39.5'	44°02.8'	78°40.9'	80°30.1'	88°45.5'
6	57°32.3'	N 2°16.6'	16.4'	12.2'	54.1'	69°25.8'	62°19.1'	53°03.9'	11°10.0'	44°29.9'	79°05.9'	80°59.8'	89°15.3'
7	72°07.7'	N 2°28.8'	16.4'	12.2'	54.1'	68°58.9'	61°54.7'	52°34.3'	10°40.5'	44°57.1'	79°30.8'	81°29.6'	89°45.0'
8	86°43.1'	N 2°40.9'	16.4'	12.1'	54.1'	68°32.0'	61°30.4'	52°04.8'	10°11.0'	45°24.3'	79°55.7'	81°59.3'	90°14.7'
9	101°18.5'	N 2°53.1'	16.4'	12.1'	54.1'	68°05.1'	61°06.1'	51°35.3'	9°41.5'	45°51.5'	80°20.7'	82°29.0'	90°44.4'
10	115°53.8'	N 3°05.2'	16.4'	12.1'	54.0'	67°38.2'	60°41.9'	51°05.7'	9°12.0'	46°18.8'	80°45.6'	82°58.7'	91°14.1'
11	130°29.2'	N 3°17.3'	16.4'	12.1'	54.0'	67°11.4'	60°17.7'	50°36.2'	8°42.5'	46°46.1'	81°10.6'	83°28.5'	91°43.8'
12	145°04.6'	N 3°29.4'	16.4'	12.1'	54.0'	66°44.6'	59°53.6'	50°06.7'	8°13.0'	47°13.4'	81°35.5'	83°58.2'	92°13.5'
13	159°39.9'	N 3°41.5'	16.4'	12.1'	54.0'	66°17.8'	59°29.5'	49°37.2'	7°43.6'	47°40.7'	82°00.5'	84°27.9'	92°43.2'
14	174°15.3'	N 3°53.6'	16.3'	12.1'	54.0'	65°51.0'	59°05.5'	49°07.7'	7°14.1'	48°08.1'	82°25.5'	84°57.6'	93°12.9'
15	188°50.6'	N 4°05.6'	16.3'	12.0'	54.0'	65°24.3'	58°41.6'	48°38.2'	6°44.6'	48°35.5'	82°50.5'	85°27.2'	93°42.5'
16	203°25.9'	N 4°17.7'	16.3'	12.0'	54.0'	64°57.6'	58°17.7'	48°08.8'	6°15.2'	49°02.9'	83°15.4'	85°56.9'	94°12.2'
17	218°01.3'	N 4°29.7'	16.3'	12.0'	54.0'	64°30.9'	57°53.8'	47°39.3'	5°45.7'	49°30.4'	83°40.4'	86°26.6'	94°41.9'
18	232°36.6'	N 4°41.7'	16.3'	12.0'	54.0'	64°04.2'	57°30.1'	47°09.8'	5°16.3'	49°57.9'	84°05.4'	86°56.3'	95°11.5'
19	247°11.9'	N 4°53.6'	16.3'	12.0'	54.0'	63°37.6'	57°06.4'	46°40.4'	4°46.8'	50°25.4'	84°30.4'	87°25.9'	95°41.1'
20	261°47.2'	N 5°05.6'	16.3'	11.9'	54.0'	63°11.0'	56°42.7'	46°10.9'	4°17.4'	50°52.9'	84°55.4'	87°55.6'	96°10.8'
21	276°22.5'	N 5°17.5'	16.3'	11.9'	54.0'	62°44.4'	56°19.2'	45°41.5'	3°47.9'	51°20.5'	85°20.4'	88°25.2'	96°40.4'
22	290°57.8'	N 5°29.5'	16.3'	11.9'	54.0'	62°17.9'	55°55.7'	45°12.1'	3°18.5'	51°48.1'	85°45.4'	88°54.9'	97°10.0'
23	305°33.0'	N 5°41.4'	16.2'	11.9'	54.0'	61°51.4'	55°32.2'	44°42.7'	2°49.1'	52°15.7'	86°10.4'	89°24.5'	97°39.7'
Mer. pass.		2 h 3 m SD 14.8'		phase 93%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.7'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°24.5'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.3'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.2'	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°32.6'	180°24.7' N	6°20.8'	224°02.9' N	18°43.6'	56°32.1' S	22°42.3'	47°43.9' S	21°16.5'	317°58.8' N	6°47.6'	
1	0°35.1'	195°24.9' N	6°19.9'	239°02.5' N	18°43.2'	71°34.7' S	22°42.3'	62°46.5' S	21°16.5'	333°01.2' N	6°47.7'	
2	15°37.6'	210°25.1' N	6°18.9'	254°02.1' N	18°42.8'	86°37.2' S	22°42.3'	77°49.0' S	21°16.5'	348°03.5' N	6°47.7'	
3	30°40.0'	225°25.3' N	6°18.0'	269°01.7' N	18°42.5'	101°39.7' S	22°42.3'	92°51.6' S	21°16.5'	3°05.8' N	6°47.8'	
4	45°42.5'	240°25.5' N	6°17.1'	284°01.3' N	18°42.1'	116°42.2' S	22°42.3'	107°54.1' S	21°16.5'	18°08.2' N	6°47.9'	
5	60°44.9'	255°25.7' N	6°16.1'	299°01.0' N	18°41.7'	131°44.7' S	22°42.3'	122°56.7' S	21°16.6'	33°10.5' N	6°47.9'	
6	75°47.4'	270°25.9' N	6°15.2'	314°00.6' N	18°41.3'	146°47.3' S	22°42.3'	137°59.3' S	21°16.6'	48°12.9' N	6°48.0'	
7	90°49.9'	285°26.1' N	6°14.3'	329°00.2' N	18°40.9'	161°49.8' S	22°42.4'	153°01.8' S	21°16.6'	63°15.2' N	6°48.0'	
8	105°52.3'	300°26.4' N	6°13.3'	343°59.8' N	18°40.6'	176°52.3' S	22°42.4'	168°04.4' S	21°16.6'	78°17.5' N	6°48.1'	
9	120°54.8'	315°26.6' N	6°12.4'	358°59.4' N	18°40.2'	191°54.8' S	22°42.4'	183°06.9' S	21°16.6'	93°19.9' N	6°48.1'	
10	135°57.3'	330°26.8' N	6°11.5'	13°59.1' N	18°39.8'	206°57.4' S	22°42.4'	198°09.5' S	21°16.6'	108°22.2' N	6°48.2'	
11	150°59.7'	345°27.0' N	6°10.5'	28°58.7' N	18°39.4'	221°59.9' S	22°42.4'	213°12.1' S	21°16.7'	123°24.6' N	6°48.2'	
12	166°02.2'	0°27.2' N	6°09.6'	43°58.3' N	18°39.0'	237°02.4' S	22°42.4'	228°14.6' S	21°16.7'	138°26.9' N	6°48.3'	
13	181°04.7'	15°27.4' N	6°08.7'	58°57.9' N	18°38.6'	252°04.9' S	22°42.4'	243°17.2' S	21°16.7'	153°29.3' N	6°48.3'	
14	196°07.1'	30°27.6' N	6°07.7'	73°57.5' N	18°38.3'	267°07.4' S	22°42.4'	258°19.7' S	21°16.7'	168°31.6' N	6°48.4'	
15	211°09.6'	45°27.9' N	6°06.8'	88°57.1' N	18°37.9'	282°10.0' S	22°42.4'	273°22.3' S	21°16.7'	183°34.0' N	6°48.4'	
16	226°12.0'	60°28.1' N	6°05.9'	103°56.8' N	18°37.5'	297°12.5' S	22°42.4'	288°24.8' S	21°16.8'	198°36.3' N	6°48.5'	
17	241°14.5'	75°28.3' N	6°04.9'	118°56.4' N	18°37.1'	312°15.0' S	22°42.4'	303°27.4' S	21°16.8'	213°38.7' N	6°48.5'	
18	256°17.0'	90°28.5' N	6°04.0'	133°56.0' N	18°36.7'	327°17.5' S	22°42.5'	318°30.0' S	21°16.8'	228°41.1' N	6°48.6'	
19	271°19.4'	105°28.7' N	6°03.1'	148°55.6' N	18°36.3'	342°20.0' S	22°42.5'	333°32.5' S	21°16.8'	243°43.4' N	6°48.6'	
20	286°21.9'	120°28.9' N	6°02.1'	163°55.2' N	18°35.9'	357°22.5' S	22°42.5'	348°35.1' S	21°16.8'	258°45.8' N	6°48.7'	
21	301°24.4'	135°29.1' N	6°01.2'	178°54.9' N	18°35.5'	12°25.1' S	22°42.5'	3°37.6' S	21°16.9'	273°48.1' N	6°48.7'	
22	316°26.8'	150°29.3' N	6°00.3'	193°54.5' N	18°35.1'	27°27.6' S	22°42.5'	18°40.2' S	21°16.9'	288°50.5' N	6°48.8'	
23	331°29.3'	165°29.6' N	5°59.3'	208°54.1' N	18°34.7'	42°30.1' S	22°42.5'	33°42.7' S	21°16.9'	303°52.9' N	6°48.8'	
		SD 15.9' d -0.9'		v -0.4' d -0.4'		v 2.5' d -0.0'		v 2.6' d -0.0'		v 2.3' d 0.1'		
Mer. pass.		11 h 58 m 12 s		9 h 4 m		20 h 10 m		20 h 46 m		2 h 48 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Altair	+Saturn	+Jupiter
0	320°08.3'	N 5°53.2'	16.2'	11.8'	54.0'	61°24.9'	55°08.9'	44°13.2'	2°19.7'	52°43.3'	86°35.4'	89°54.2'	98°09.3'
1	334°43.5'	N 6°05.1'	16.2'	11.8'	54.0'	60°58.4'	54°45.6'	43°43.8'	1°50.2'	53°10.9'	87°00.4'	90°23.8'	98°38.9'
2	349°18.7'	N 6°16.9'	16.2'	11.8'	54.0'	60°32.0'	54°22.3'	43°14.4'	1°20.8'	53°38.6'	87°25.4'	90°53.4'	99°08.5'
3	3°53.9'	N 6°28.7'	16.2'	11.8'	54.0'	60°05.6'	53°59.2'	42°45.0'	0°51.4'	54°06.3'	87°50.4'	91°23.1'	99°38.1'
4	18°29.1'	N 6°40.5'	16.2'	11.7'	54.0'	59°39.3'	53°36.1'	42°15.7'		54°34.0'	88°15.4'	91°52.7'	100°07.7'
5	33°04.2'	N 6°52.2'	16.1'	11.7'	54.0'	59°13.0'	53°13.1'	41°46.3'		55°01.7'	88°40.4'	92°22.3'	100°37.3'
6	47°39.4'	N 7°03.9'	16.1'	11.7'	54.0'	58°46.7'	52°50.2'	41°16.9'	0°36.9'	55°29.4'	89°05.4'	92°51.9'	101°06.9'
7	62°14.5'	N 7°15.6'	16.1'	11.7'	54.0'	58°20.4'	52°27.3'	40°47.5'	1°06.3'	55°57.2'	89°30.4'	93°21.5'	101°36.5'
8	76°49.6'	N 7°27.3'	16.1'	11.6'	54.0'	57°54.2'	52°04.6'	40°18.2'	1°35.7'	56°25.0'	89°55.4'	93°51.1'	102°06.1'
9	91°24.6'	N 7°38.9'	16.1'	11.6'	54.0'	57°28.1'	51°41.9'	39°48.8'	2°05.1'	56°52.8'	90°20.4'	94°20.8'	102°35.7'
10	105°59.7'	N 7°50.5'	16.0'	11.6'	54.0'	57°01.9'	51°19.3'	39°19.5'	2°34.5'	57°20.6'	90°45.3'	94°50.4'	103°05.2'
11	120°34.7'	N 8°02.1'	16.0'	11.5'	54.0'	56°35.8'	50°56.8'	38°50.1'	3°03.9'	57°48.4'	91°10.3'	95°20.0'	103°34.8'
12	135°09.7'	N 8°13.7'	16.0'	11.5'	54.0'	56°09.7'	50°34.3'	38°20.8'	3°33.3'	58°16.2'	91°35.3'	95°49.6'	104°04.4'
13	149°44.7'	N 8°25.2'	16.0'	11.5'	54.0'	55°43.7'	50°12.0'	37°51.4'	4°02.7'	58°44.1'	92°00.3'	96°19.2'	104°34.0'
14	164°19.6'	N 8°36.7'	15.9'	11.5'	54.0'	55°17.7'	49°49.8'	37°22.1'	4°32.2'	59°12.0'	92°25.3'	96°48.8'	105°03.5'
15	178°54.6'	N 8°48.1'	15.9'	11.4'	54.0'	54°51.8'	49°27.6'	36°52.8'	5°01.6'	59°39.9'	92°50.2'	97°18.4'	105°33.1'
16	193°29.5'	N 8°59.5'	15.9'	11.4'	54.0'	54°25.9'	49°05.6'	36°23.5'	5°31.0'	60°07.8'	93°15.2'	97°48.0'	106°02.7'
17	208°04.3'	N 9°10.9'	15.8'	11.3'	54.0'	53°60.0'	48°43.6'	35°54.2'	6°00.4'	60°35.7'	93°40.2'	98°17.6'	106°32.3'
18	222°39.2'	N 9°22.3'	15.8'	11.3'	54.0'	53°34.2'	48°21.7'	35°24.9'	6°29.8'	61°03.6'	94°05.1'	98°47.2'	107°01.8'
19	237°14.0'	N 9°33.6'	15.8'	11.3'	54.0'	53°08.4'	47°60.0'	34°55.6'	6°59.2'	61°31.6'	94°30.1'	99°16.8'	107°31.4'
20	251°48.8'	N 9°44.9'	15.7'	11.2'	54.0'	52°42.7'	47°38.3'	34°26.3'	7°28.7'	61°59.6'	94°55.1'	99°46.4'	108°01.0'
21	266°23.5'	N 9°56.1'	15.7'	11.2'	54.0'	52°17.0'	47°16.8'	33°57.0'	7°58.1'	62°27.5'	95°20.0'	100°16.0'	108°30.6'
22	280°58.2'	N 10°07.3'	15.7'	11.2'	54.0'	51°51.3'	46°55.4'	33°27.7'	8°27.5'	62°55.5'	95°44.9'	100°45.6'	109°00.1'
23	295°32.9'	N 10°18.5'	15.6'	11.1'	54.0'	51°25.7'	46°34.0'	32°58.4'	8°56.9'	63°23.6'	96°09.9'	101°15.2'	109°29.7'
Mer. pass.		2 h 44 m SD 14.7'		phase 87%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°24.1'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	346°31.8'		180°29.8'	N 5°58.4'	223°53.7'	N 18°34.3'	57°32.6'	S 22°42.5'	48°45.3'	S 21°16.9'	318°55.2'	N 6°48.9'
1	1°34.2'		195°30.0'	N 5°57.4'	238°53.3'	N 18°33.9'	72°35.1'	S 22°42.5'	63°47.8'	S 21°16.9'	333°57.6'	N 6°48.9'
2	16°36.7'		210°30.2'	N 5°56.5'	253°52.9'	N 18°33.5'	87°37.6'	S 22°42.5'	78°50.4'	S 21°16.9'	348°60.0'	N 6°49.0'
3	31°39.2'		225°30.4'	N 5°55.6'	268°52.5'	N 18°33.1'	102°40.2'	S 22°42.5'	93°53.0'	S 21°17.0'	4°02.3'	N 6°49.0'
4	46°41.6'		240°30.6'	N 5°54.6'	283°52.2'	N 18°32.8'	117°42.7'	S 22°42.5'	108°55.5'	S 21°17.0'	19°04.7'	N 6°49.1'
5	61°44.1'		255°30.8'	N 5°53.7'	298°51.8'	N 18°32.4'	132°45.2'	S 22°42.5'	123°58.1'	S 21°17.0'	34°07.1'	N 6°49.1'
6	76°46.5'		270°31.1'	N 5°52.8'	313°51.4'	N 18°32.0'	147°47.7'	S 22°42.6'	139°00.6'	S 21°17.0'	49°09.5'	N 6°49.1'
7	91°49.0'		285°31.3'	N 5°51.8'	328°51.0'	N 18°31.5'	162°50.2'	S 22°42.6'	154°03.2'	S 21°17.0'	64°11.8'	N 6°49.2'
8	106°51.5'		300°31.5'	N 5°50.9'	343°50.6'	N 18°31.1'	177°52.7'	S 22°42.6'	169°05.7'	S 21°17.1'	79°14.2'	N 6°49.2'
9	121°53.9'		315°31.7'	N 5°49.9'	358°50.2'	N 18°30.7'	192°55.2'	S 22°42.6'	184°08.3'	S 21°17.1'	94°16.6'	N 6°49.3'
10	136°56.4'		330°31.9'	N 5°49.0'	13°49.9'	N 18°30.3'	207°57.8'	S 22°42.6'	199°10.8'	S 21°17.1'	109°19.0'	N 6°49.3'
11	151°58.9'		345°32.1'	N 5°48.1'	28°49.5'	N 18°29.9'	223°00.3'	S 22°42.6'	214°13.4'	S 21°17.1'	124°21.4'	N 6°49.4'
12	167°01.3'		0°32.4'	N 5°47.1'	43°49.1'	N 18°29.5'	238°02.8'	S 22°42.6'	229°16.0'	S 21°17.1'	139°23.7'	N 6°49.4'
13	182°03.8'		15°32.6'	N 5°46.2'	58°48.7'	N 18°29.1'	253°05.3'	S 22°42.6'	244°18.5'	S 21°17.2'	154°26.1'	N 6°49.4'
14	197°06.3'		30°32.8'	N 5°45.3'	73°48.3'	N 18°28.7'	268°07.8'	S 22°42.6'	259°21.1'	S 21°17.2'	169°28.5'	N 6°49.5'
15	212°08.7'		45°33.0'	N 5°44.3'	88°47.9'	N 18°28.3'	283°10.3'	S 22°42.6'	274°23.6'	S 21°17.2'	184°30.9'	N 6°49.5'
16	227°11.2'		60°33.2'	N 5°43.4'	103°47.5'	N 18°27.9'	298°12.8'	S 22°42.6'	289°26.2'	S 21°17.2'	199°33.3'	N 6°49.6'
17	242°13.7'		75°33.4'	N 5°42.4'	118°47.1'	N 18°27.5'	313°15.3'	S 22°42.6'	304°28.7'	S 21°17.2'	214°35.7'	N 6°49.6'
18	257°16.1'		90°33.6'	N 5°41.5'	133°46.8'	N 18°27.1'	328°17.8'	S 22°42.7'	319°31.3'	S 21°17.2'	229°38.1'	N 6°49.6'
19	272°18.6'		105°33.9'	N 5°40.6'	148°46.4'	N 18°26.7'	343°20.3'	S 22°42.7'	334°33.8'	S 21°17.3'	244°40.5'	N 6°49.7'
20	287°21.0'		120°34.1'	N 5°39.6'	163°46.0'	N 18°26.2'	358°22.9'	S 22°42.7'	349°36.4'	S 21°17.3'	259°42.9'	N 6°49.7'
21	302°23.5'		135°34.3'	N 5°38.7'	178°45.6'	N 18°25.8'	13°25.4'	S 22°42.7'	4°38.9'	S 21°17.3'	274°45.3'	N 6°49.8'
22	317°26.0'		150°34.5'	N 5°37.7'	193°45.2'	N 18°25.4'	28°27.9'	S 22°42.7'	19°41.5'	S 21°17.3'	289°47.7'	N 6°49.8'
23	332°28.4'		165°34.7'	N 5°36.8'	208°44.8'	N 18°25.0'	43°30.4'	S 22°42.7'	34°44.0'	S 21°17.3'	304°50.1'	N 6°49.8'
			SD 15.9'	d -0.9'	v -0.4'	d -0.4'	v 2.5'	d -0.0'	v 2.6'	d -0.0'	v 2.4'	d 0.0'
Mer. pass.			11 h 57 m 51 s		9 h 5 m		20 h 6 m		20 h 41 m		2 h 44 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Mars	+Fomalhaut	+Achernar	+Altair
0	310°07.5'	N 10°29.6'	15.6'	11.1'	54.0'		51°00.2'	46°12.8'	32°29.1'	9°26.4'	63°51.6'		96°34.8'
1	324°42.1'	N 10°40.7'	15.6'	11.0'	54.0'		50°34.7'	45°51.8'	31°59.8'	9°55.8'	64°19.6'		96°59.7'
2	339°16.7'	N 10°51.7'	15.5'	11.0'	54.0'		50°09.3'	45°30.8'	31°30.6'	10°25.2'	64°47.7'		97°24.6'
3	353°51.2'	N 11°02.7'	15.5'	11.0'	54.1'		49°43.9'	45°09.9'	31°01.3'	10°54.7'	65°15.8'		97°49.5'
4	8°25.7'	N 11°13.7'	15.5'	10.9'	54.1'		49°18.5'	44°49.2'	30°32.1'	11°24.1'	65°43.8'		98°14.4'
5	23°00.2'	N 11°24.6'	15.4'	10.9'	54.1'		48°53.2'	44°28.6'	30°02.8'	11°53.6'	66°11.9'		98°39.3'
6	37°34.6'	N 11°35.5'	15.4'	10.8'	54.1'		48°28.0'	44°08.2'	29°33.6'	12°23.1'	66°40.1'		99°04.2'
7	52°09.0'	N 11°46.4'	15.3'	10.8'	54.1'		48°02.9'	43°47.9'	29°04.3'	12°52.5'	67°08.2'		99°29.1'
8	66°43.3'	N 11°57.1'	15.3'	10.7'	54.1'		47°37.7'	43°27.7'	28°35.1'	13°22.0'	67°36.3'		99°53.9'
9	81°17.6'	N 12°07.9'	15.3'	10.7'	54.1'		47°12.7'	43°07.6'	28°05.9'	13°51.5'	68°04.5'		100°18.8'
10	95°51.9'	N 12°18.6'	15.2'	10.7'	54.1'		46°47.7'	42°47.7'	27°36.6'	14°20.9'	68°32.7'	70°45.7'	100°43.6'
11	110°26.1'	N 12°29.3'	15.2'	10.6'	54.1'		46°22.8'	42°28.0'	27°07.4'	14°50.4'	69°00.8'	71°00.8'	101°08.5'
12	125°00.3'	N 12°39.9'	15.1'	10.6'	54.1'		45°57.9'	42°08.4'	26°38.2'	15°19.9'	69°29.0'	71°15.9'	101°33.3'
13	139°34.4'	N 12°50.4'	15.1'	10.5'	54.1'		45°33.2'	41°48.9'	26°09.0'	15°49.4'	69°57.2'	71°31.1'	101°58.1'
14	154°08.5'	N 13°00.9'	15.0'	10.5'	54.1'		45°08.5'	41°29.6'	25°39.8'	16°18.9'	70°25.5'	71°46.4'	102°22.9'
15	168°42.5'	N 13°11.4'	15.0'	10.4'	54.1'		44°43.8'	41°10.5'	25°10.6'	16°48.5'	70°53.7'	72°01.7'	102°47.7'
16	183°16.5'	N 13°21.8'	14.9'	10.4'	54.1'		44°19.2'	40°51.6'	24°41.5'	17°18.0'	71°22.0'	72°17.1'	103°12.5'
17	197°50.4'	N 13°32.2'	14.9'	10.3'	54.1'	119°33.9'	43°54.7'	40°32.8'	24°12.3'	17°47.5'	71°50.2'	72°32.6'	103°37.3'
18	212°24.3'	N 13°42.5'	14.8'	10.3'	54.2'	119°06.9'	43°30.3'	40°14.2'	23°43.2'	18°17.1'	72°18.5'	72°48.1'	104°02.0'
19	226°58.1'	N 13°52.8'	14.8'	10.2'	54.2'	118°39.8'	43°06.0'	39°55.7'	23°14.0'	18°46.6'	72°46.8'	73°03.7'	104°26.7'
20	241°31.9'	N 14°03.0'	14.7'	10.2'	54.2'	118°12.7'	42°41.8'	39°37.5'	22°44.9'	19°16.2'	73°15.1'	73°19.3'	104°51.5'
21	256°05.7'	N 14°13.1'	14.7'	10.1'	54.2'	117°45.6'	42°17.6'	39°19.4'	22°15.8'	19°45.7'	73°43.5'	73°35.0'	105°16.2'
22	270°39.4'	N 14°23.2'	14.6'	10.0'	54.2'	117°18.5'	41°53.5'	39°01.6'	21°46.7'	20°15.3'	74°11.8'	73°50.8'	105°40.9'
23	285°13.0'	N 14°33.3'	14.6'	10.0'	54.2'	116°51.4'	41°29.5'	38°43.9'	21°17.6'	20°44.9'	74°40.2'	74°06.6'	106°05.6'
Mer. pass.			3 h 25 m SD 14.7'		phase 80%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.8'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.1'	N 8°55.5'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°23.6'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.1'	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°30.9'	N 180°34.9'	5°35.9'	223°44.4'	N 18°24.6'	58°32.9'	S 22°42.7'	49°46.6'	S 21°17.4'	319°52.5'	N 6°49.9'	
1	2°33.4'	195°35.2'	N 5°34.9'	238°44.0'	N 18°24.2'	73°35.4'	S 22°42.7'	64°49.1'	S 21°17.4'	334°54.9'	N 6°49.9'	
2	17°35.8'	210°35.4'	N 5°34.0'	253°43.7'	N 18°23.8'	88°37.9'	S 22°42.7'	79°51.7'	S 21°17.4'	349°57.3'	N 6°49.9'	
3	32°38.3'	225°35.6'	N 5°33.0'	268°43.3'	N 18°23.3'	103°40.4'	S 22°42.7'	94°54.3'	S 21°17.4'	4°59.7'	N 6°50.0'	
4	47°40.8'	240°35.8'	N 5°32.1'	283°42.9'	N 18°22.9'	118°42.9'	S 22°42.7'	109°56.8'	S 21°17.4'	20°02.1'	N 6°50.0'	
5	62°43.2'	255°36.0'	N 5°31.2'	298°42.5'	N 18°22.5'	133°45.4'	S 22°42.7'	124°59.4'	S 21°17.4'	35°04.5'	N 6°50.1'	
6	77°45.7'	270°36.2'	N 5°30.2'	313°42.1'	N 18°22.1'	148°47.9'	S 22°42.7'	140°01.9'	S 21°17.5'	50°06.9'	N 6°50.1'	
7	92°48.1'	285°36.5'	N 5°29.3'	328°41.7'	N 18°21.6'	163°50.4'	S 22°42.7'	155°04.5'	S 21°17.5'	65°09.3'	N 6°50.1'	
8	107°50.6'	300°36.7'	N 5°28.3'	343°41.3'	N 18°21.2'	178°52.9'	S 22°42.8'	170°07.0'	S 21°17.5'	80°11.7'	N 6°50.2'	
9	122°53.1'	315°36.9'	N 5°27.4'	358°40.9'	N 18°20.8'	193°55.4'	S 22°42.8'	185°09.6'	S 21°17.5'	95°14.1'	N 6°50.2'	
10	137°55.5'	330°37.1'	N 5°26.5'	13°40.5'	N 18°20.4'	208°57.9'	S 22°42.8'	200°12.1'	S 21°17.5'	110°16.6'	N 6°50.2'	
11	152°58.0'	345°37.3'	N 5°25.5'	28°40.2'	N 18°20.0'	224°00.4'	S 22°42.8'	215°14.7'	S 21°17.5'	125°19.0'	N 6°50.3'	
12	168°00.5'	0°37.5'	N 5°24.6'	43°39.8'	N 18°19.5'	239°02.9'	S 22°42.8'	230°17.2'	S 21°17.6'	140°21.4'	N 6°50.3'	
13	183°02.9'	15°37.8'	N 5°23.6'	58°39.4'	N 18°19.1'	254°05.5'	S 22°42.8'	245°19.8'	S 21°17.6'	155°23.8'	N 6°50.3'	
14	198°05.4'	30°38.0'	N 5°22.7'	73°39.0'	N 18°18.7'	269°08.0'	S 22°42.8'	260°22.3'	S 21°17.6'	170°26.2'	N 6°50.4'	
15	213°07.9'	45°38.2'	N 5°21.7'	88°38.6'	N 18°18.2'	284°10.5'	S 22°42.8'	275°24.9'	S 21°17.6'	185°28.7'	N 6°50.4'	
16	228°10.3'	60°38.4'	N 5°20.8'	103°38.2'	N 18°17.8'	299°13.0'	S 22°42.8'	290°27.4'	S 21°17.6'	200°31.1'	N 6°50.4'	
17	243°12.8'	75°38.6'	N 5°19.9'	118°37.8'	N 18°17.4'	314°15.5'	S 22°42.8'	305°30.0'	S 21°17.7'	215°33.5'	N 6°50.4'	
18	258°15.3'	90°38.8'	N 5°18.9'	133°37.4'	N 18°16.9'	329°18.0'	S 22°42.8'	320°32.5'	S 21°17.7'	230°35.9'	N 6°50.5'	
19	273°17.7'	105°39.1'	N 5°18.0'	148°37.0'	N 18°16.5'	344°20.5'	S 22°42.8'	335°35.1'	S 21°17.7'	245°38.4'	N 6°50.5'	
20	288°20.2'	120°39.3'	N 5°17.0'	163°36.6'	N 18°16.1'	359°23.0'	S 22°42.8'	350°37.6'	S 21°17.7'	260°40.8'	N 6°50.5'	
21	303°22.6'	135°39.5'	N 5°16.1'	178°36.2'	N 18°15.6'	14°25.5'	S 22°42.8'	5°40.2'	S 21°17.7'	275°43.2'	N 6°50.6'	
22	318°25.1'	150°39.9'	N 5°15.1'	193°35.9'	N 18°15.2'	29°28.0'	S 22°42.8'	20°42.7'	S 21°17.7'	290°45.7'	N 6°50.6'	
23	333°27.6'	165°39.9'	N 5°14.2'	208°35.5'	N 18°14.8'	44°30.5'	S 22°42.9'	35°45.3'	S 21°17.8'	305°48.1'	N 6°50.6'	
		SD 15.9'	d -0.9'		v -0.4'	d -0.4'		v 2.5'	d -0.0'		v 2.4'	d 0.0'
Mer. pass.		11 h 57 m 30 s		9 h 5 m		20 h 2 m		20 h 37 m		2 h 40 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Capella	-Rigel	-Aldebaran	+Mars	+Achernar	+Fomalhaut	+Altair
0	299°46.6'	N 14°43.3'	14.5'	9.9'	54.2'	116°24.3'	41°05.6'	38°26.4'	20°48.5'	21°14.5'	74°22.5'	75°08.5'	106°30.2'
1	314°20.1'	N 14°53.2'	14.5'	9.9'	54.2'	115°57.2'	40°41.8'	38°09.2'	20°19.4'	21°44.1'	74°38.4'	75°36.9'	106°54.9'
2	328°53.6'	N 15°03.1'	14.4'	9.8'	54.2'	115°30.1'	40°18.1'	37°52.1'	19°50.4'	22°13.8'	74°54.4'	76°05.3'	107°19.5'
3	343°27.0'	N 15°12.9'	14.4'	9.8'	54.2'	115°02.9'	39°54.6'	37°35.3'	19°21.4'	22°43.4'	75°10.4'	76°33.7'	107°44.1'
4	358°00.4'	N 15°22.7'	14.3'	9.7'	54.3'	114°35.8'	39°31.1'	37°18.7'	18°52.4'	23°13.0'	75°26.5'	77°02.2'	108°08.7'
5	12°33.7'	N 15°32.4'	14.3'	9.6'	54.3'	114°08.6'	39°07.7'	37°02.3'	18°23.5'	23°42.7'	75°42.6'	77°30.6'	108°33.3'
6	27°07.0'	N 15°42.0'	14.2'	9.6'	54.3'	113°41.4'	38°44.4'	36°46.2'	17°54.5'	24°12.4'	75°58.8'	77°59.1'	108°57.9'
7	41°40.2'	N 15°51.6'	14.1'	9.5'	54.3'	113°14.2'	38°21.3'	36°30.3'	17°25.6'	24°42.1'	76°15.1'	78°27.6'	109°22.4'
8	56°13.3'	N 16°01.1'	14.1'	9.5'	54.3'	112°47.0'	37°58.2'	36°14.6'	16°56.8'	25°11.8'	76°31.4'	78°56.1'	109°47.0'
9	70°46.4'	N 16°10.6'	14.0'	9.4'	54.3'	112°19.8'	37°35.3'	35°59.2'	16°28.0'	25°41.5'	76°47.7'	79°24.6'	110°11.5'
10	85°19.4'	N 16°20.0'	14.0'	9.3'	54.3'	111°52.6'	37°12.6'		15°59.2'	26°11.2'	77°04.1'	79°53.1'	110°36.0'
11	99°52.4'	N 16°29.3'	13.9'	9.3'	54.3'	111°25.4'	36°49.9'		15°30.5'	26°40.9'	77°20.6'	80°21.6'	111°00.4'
12	114°25.3'	N 16°38.6'	13.8'	9.2'	54.4'	110°58.1'	36°27.4'		15°01.8'	27°10.7'	77°37.1'	80°50.2'	111°24.9'
13	128°58.1'	N 16°47.8'	13.8'	9.1'	54.4'	110°30.8'	36°05.0'		14°33.2'	27°40.5'	77°53.6'	81°18.8'	111°49.3'
14	143°30.9'	N 16°56.9'	13.7'	9.1'	54.4'	110°03.6'	35°42.8'		14°04.6'	28°10.3'	78°10.2'	81°47.4'	112°13.7'
15	158°03.6'	N 17°06.0'	13.7'	9.0'	54.4'	109°36.3'	35°20.8'		13°36.2'	28°40.1'	78°26.9'	82°16.0'	112°38.1'
16	172°36.3'	N 17°14.9'	13.6'	8.9'	54.4'	109°08.9'	34°58.8'		13°07.8'	29°09.9'	78°43.5'	82°44.6'	113°02.4'
17	187°08.9'	N 17°23.9'	13.5'	8.9'	54.4'	108°41.6'	34°37.1'		12°39.5'	29°39.7'	79°00.3'	83°13.2'	113°26.8'
18	201°41.4'	N 17°32.7'	13.5'	8.8'	54.4'	108°14.3'	34°15.5'		12°11.4'	30°09.6'	79°17.0'	83°41.9'	113°51.1'
19	216°13.9'	N 17°41.5'	13.4'	8.7'	54.5'	107°46.9'	33°54.1'		11°43.3'	30°39.4'	79°33.8'	84°10.6'	114°15.3'
20	230°46.3'	N 17°50.2'	13.3'	8.6'	54.5'	107°19.5'	33°32.9'		11°15.4'	31°09.3'	79°50.7'	84°39.3'	114°39.6'
21	245°18.6'	N 17°58.9'	13.3'	8.6'	54.5'	106°52.1'	33°11.8'		10°47.7'	31°39.2'	80°07.6'	85°08.0'	115°03.8'
22	259°50.9'	N 18°07.5'	13.2'	8.5'	54.5'	106°24.7'	32°51.0'		10°20.1'	32°09.1'	80°24.5'	85°36.7'	115°28.0'
23	274°23.1'	N 18°16.0'	13.1'	8.4'	54.5'	105°57.3'	32°30.3'		9°52.8'	32°39.1'	80°41.5'	86°05.5'	115°52.2'
Mer. pass.		4 h 8 m SD 14.8'		phase 72%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.9'	N 27°58.6'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°23.1'	N 89°20.7'
Rigel Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.4'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	348°30.0'	180°40.1'	N 5°13.3'	223°35.1'	N 18°14.3'	59°33.0'	S 22°42.9'	50°47.8'	S 21°17.8'	320°50.5'	N 6°50.6'
1	3°32.5'	195°40.4'	N 5°12.3'	238°34.7'	N 18°13.9'	74°35.5'	S 22°42.9'	65°50.4'	S 21°17.8'	335°53.0'	N 6°50.7'
2	18°35.0'	210°40.6'	N 5°11.4'	253°34.3'	N 18°13.5'	89°38.0'	S 22°42.9'	80°52.9'	S 21°17.8'	350°55.4'	N 6°50.7'
3	33°37.4'	225°40.8'	N 5°10.4'	268°33.9'	N 18°13.0'	104°40.5'	S 22°42.9'	95°55.4'	S 21°17.8'	5°57.9'	N 6°50.7'
4	48°39.9'	240°41.0'	N 5°09.5'	283°33.5'	N 18°12.6'	119°42.9'	S 22°42.9'	110°58.0'	S 21°17.8'	21°00.3'	N 6°50.7'
5	63°42.4'	255°41.2'	N 5°08.5'	298°33.1'	N 18°12.1'	134°45.4'	S 22°42.9'	126°00.5'	S 21°17.9'	36°02.7'	N 6°50.8'
6	78°44.8'	270°41.5'	N 5°07.6'	313°32.7'	N 18°11.7'	149°47.9'	S 22°42.9'	141°03.1'	S 21°17.9'	51°05.2'	N 6°50.8'
7	93°47.3'	285°41.7'	N 5°06.6'	328°32.3'	N 18°11.2'	164°50.4'	S 22°42.9'	156°05.6'	S 21°17.9'	66°07.6'	N 6°50.8'
8	108°49.8'	300°41.9'	N 5°05.7'	343°31.9'	N 18°10.8'	179°52.9'	S 22°42.9'	171°08.2'	S 21°17.9'	81°10.1'	N 6°50.8'
9	123°52.2'	315°42.1'	N 5°04.7'	358°31.5'	N 18°10.4'	194°55.4'	S 22°42.9'	186°10.7'	S 21°17.9'	96°12.5'	N 6°50.9'
10	138°54.7'	330°42.3'	N 5°03.8'	13°31.1'	N 18°09.9'	209°57.9'	S 22°42.9'	201°13.3'	S 21°17.9'	111°15.0'	N 6°50.9'
11	153°57.1'	345°42.5'	N 5°02.9'	28°30.8'	N 18°09.5'	225°00.4'	S 22°42.9'	216°15.8'	S 21°18.0'	126°17.4'	N 6°50.9'
12	168°59.6'	0°42.8'	N 5°01.9'	43°30.4'	N 18°09.0'	240°02.9'	S 22°42.9'	231°18.4'	S 21°18.0'	141°19.9'	N 6°50.9'
13	184°02.1'	15°43.0'	N 5°01.0'	58°30.0'	N 18°08.6'	255°05.4'	S 22°42.9'	246°20.9'	S 21°18.0'	156°22.4'	N 6°51.0'
14	199°04.5'	30°43.2'	N 5°00.0'	73°29.6'	N 18°08.1'	270°07.9'	S 22°42.9'	261°23.5'	S 21°18.0'	171°24.8'	N 6°51.0'
15	214°07.0'	45°43.4'	N 4°59.1'	88°29.2'	N 18°07.7'	285°10.4'	S 22°43.0'	276°26.0'	S 21°18.0'	186°27.3'	N 6°51.0'
16	229°09.5'	60°43.6'	N 4°58.1'	103°28.8'	N 18°07.2'	300°12.9'	S 22°43.0'	291°28.6'	S 21°18.0'	201°29.7'	N 6°51.0'
17	244°11.9'	75°43.9'	N 4°57.2'	118°28.4'	N 18°06.8'	315°15.4'	S 22°43.0'	306°31.1'	S 21°18.1'	216°32.2'	N 6°51.0'
18	259°14.4'	90°44.1'	N 4°56.2'	133°28.0'	N 18°06.3'	330°17.9'	S 22°43.0'	321°33.7'	S 21°18.1'	231°34.7'	N 6°51.1'
19	274°16.9'	105°44.3'	N 4°55.3'	148°27.6'	N 18°05.9'	345°20.4'	S 22°43.0'	336°36.2'	S 21°18.1'	246°37.1'	N 6°51.1'
20	289°19.3'	120°44.5'	N 4°54.3'	163°27.2'	N 18°05.4'	0°22.9'	S 22°43.0'	351°38.7'	S 21°18.1'	261°39.6'	N 6°51.1'
21	304°21.8'	135°44.7'	N 4°53.4'	178°26.8'	N 18°04.9'	15°25.4'	S 22°43.0'	6°41.3'	S 21°18.1'	276°42.1'	N 6°51.1'
22	319°24.2'	150°44.9'	N 4°52.4'	193°26.4'	N 18°04.5'	30°27.8'	S 22°43.0'	21°43.8'	S 21°18.2'	291°44.5'	N 6°51.1'
23	334°26.7'	165°45.2'	N 4°51.5'	208°26.0'	N 18°04.0'	45°30.3'	S 22°43.0'	36°46.4'	S 21°18.2'	306°47.0'	N 6°51.2'
		SD 15.9'	d -0.9'	v -0.4'	d -0.4'	v 2.5'	d -0.0'	v 2.5'	d -0.0'	v 2.5'	d 0.0'
Mer. pass.		11 h 57 m 10 s		9 h 6 m		19 h 58 m		20 h 33 m		2 h 36 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Capella	-Betelgeuse	-Aldebaran	+Mars	+Achernar	+Fomalhaut	+Altair
0	288°55.2'	N 18°24.4'	13.1'	8.3'	54.5'	105°29.9'	32°09.9'	30°42.6'	9°25.7'	33°09.0'	80°58.5'	86°34.2'	116°16.3'
1	303°27.3'	N 18°32.7'	13.0'	8.3'	54.6'	105°02.4'	31°49.6'	30°17.6'	8°58.9'	33°39.0'	81°15.5'	87°03.0'	116°40.4'
2	317°59.3'	N 18°41.0'	12.9'	8.2'	54.6'	104°34.9'	31°29.6'	29°52.7'	8°32.5'	34°09.0'	81°32.6'	87°31.8'	117°04.4'
3	332°31.2'	N 18°49.2'	12.9'	8.1'	54.6'	104°07.4'	31°09.8'	29°28.0'	8°06.4'	34°39.0'	81°49.8'	88°00.6'	117°28.5'
4	347°03.1'	N 18°57.3'	12.8'	8.0'	54.6'	103°39.9'	30°50.3'	29°03.4'	7°40.8'	35°09.1'	82°06.9'	88°29.5'	117°52.5'
5	1°34.9'	N 19°05.4'	12.7'	8.0'	54.6'	103°12.4'	30°31.0'	28°38.9'	7°15.8'	35°39.1'	82°24.1'	88°58.3'	118°16.4'
6	16°06.6'	N 19°13.3'	12.7'	7.9'	54.7'	102°44.8'	30°11.9'	28°14.6'	6°51.4'	36°09.2'	82°41.3'	89°27.2'	118°40.4'
7	30°38.3'	N 19°21.2'	12.6'	7.8'	54.7'	102°17.2'	29°53.1'	27°50.4'		36°39.3'	82°58.6'	89°56.1'	119°04.2'
8	45°09.9'	N 19°29.0'	12.5'	7.7'	54.7'	101°49.6'	29°34.6'	27°26.4'		37°09.4'	83°15.9'	90°25.0'	119°28.1'
9	59°41.4'	N 19°36.7'	12.4'	7.6'	54.7'	101°22.0'	29°16.4'	27°02.6'		37°39.6'	83°33.2'	90°53.9'	119°51.9'
10	74°12.8'	N 19°44.4'	12.4'	7.6'	54.7'	100°54.4'	28°58.4'	26°38.9'		38°09.7'	83°50.6'	91°22.9'	
11	88°44.2'	N 19°51.9'	12.3'	7.5'	54.8'	100°26.7'	28°40.8'	26°15.5'		38°39.9'	84°08.0'	91°51.9'	
12	103°15.5'	N 19°59.4'	12.2'	7.4'	54.8'	99°59.0'	28°23.4'	25°52.2'		39°10.1'	84°25.4'	92°20.9'	
13	117°46.8'	N 20°06.8'	12.2'	7.3'	54.8'	99°31.3'	28°06.4'	25°29.2'		39°40.4'	84°42.9'	92°49.9'	
14	132°17.9'	N 20°14.0'	12.1'	7.2'	54.8'	99°03.6'	27°49.7'	25°06.3'		40°10.6'	85°00.4'	93°18.9'	
15	146°49.0'	N 20°21.3'	12.0'	7.1'	54.8'	98°35.8'	27°33.4'	24°43.7'		40°40.9'	85°17.9'	93°48.0'	
16	161°20.0'	N 20°28.4'	11.9'	7.0'	54.9'	98°08.1'	27°17.4'	24°21.4'		41°11.2'	85°35.4'	94°17.0'	
17	175°51.0'	N 20°35.4'	11.9'	6.9'	54.9'	97°40.3'	27°01.8'	23°59.3'		41°41.5'	85°53.0'	94°46.1'	
18	190°21.9'	N 20°42.3'	11.8'	6.8'	54.9'	97°12.5'		23°37.5'		42°11.9'	86°10.6'	95°15.3'	
19	204°52.7'	N 20°49.2'	11.7'	6.8'	54.9'	96°44.6'		23°15.9'		42°42.3'	86°28.2'	95°44.4'	
20	219°23.4'	N 20°55.9'	11.7'	6.7'	54.9'	96°16.8'		22°54.7'		43°12.7'	86°45.8'	96°13.6'	
21	233°54.0'	N 21°02.6'	11.6'	6.6'	55.0'	95°48.9'		22°33.8'		43°43.1'	87°03.5'	96°42.7'	
22	248°24.6'	N 21°09.2'	11.5'	6.5'	55.0'	95°20.9'		22°13.2'		44°13.6'	87°21.2'	97°11.9'	
23	262°55.1'	N 21°15.7'	11.4'	6.4'	55.0'	94°53.0'		21°52.9'		44°44.1'	87°38.9'	97°41.2'	
Mer. pass.		4 h 53 m SD 14.9'	phase 63%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°56.0'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.3'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°22.6'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	349°29.2'		180°45.4'	N 4°50.6'	223°25.6'	N 18°03.6'	60°32.8'	S 22°43.0'	51°48.9'	S 21°18.2'	321°49.5'	N 6°51.2'
1	4°31.6'		195°45.6'	N 4°49.6'	238°25.2'	N 18°03.1'	75°35.3'	S 22°43.0'	66°51.5'	S 21°18.2'	336°51.9'	N 6°51.2'
2	19°34.1'		210°45.8'	N 4°48.7'	253°24.8'	N 18°02.7'	90°37.8'	S 22°43.0'	81°54.0'	S 21°18.2'	351°54.4'	N 6°51.2'
3	34°36.6'		225°46.0'	N 4°47.7'	268°24.4'	N 18°02.2'	105°40.3'	S 22°43.0'	96°56.6'	S 21°18.2'	6°56.9'	N 6°51.2'
4	49°39.0'		240°46.3'	N 4°46.8'	283°24.0'	N 18°01.7'	120°42.8'	S 22°43.0'	111°59.1'	S 21°18.2'	21°59.4'	N 6°51.2'
5	64°41.5'		255°46.5'	N 4°45.8'	298°23.6'	N 18°01.3'	135°45.3'	S 22°43.0'	127°01.6'	S 21°18.3'	37°01.9'	N 6°51.3'
6	79°44.0'		270°46.7'	N 4°44.9'	313°23.3'	N 18°00.8'	150°47.8'	S 22°43.0'	142°04.2'	S 21°18.3'	52°04.3'	N 6°51.3'
7	94°46.4'		285°46.9'	N 4°43.9'	328°22.9'	N 18°00.3'	165°50.2'	S 22°43.0'	157°06.7'	S 21°18.3'	67°06.8'	N 6°51.3'
8	109°48.9'		300°47.1'	N 4°43.0'	343°22.5'	N 17°59.9'	180°52.7'	S 22°43.0'	172°09.3'	S 21°18.3'	82°09.3'	N 6°51.3'
9	124°51.4'		315°47.4'	N 4°42.0'	358°22.1'	N 17°59.4'	195°55.2'	S 22°43.0'	187°11.8'	S 21°18.3'	97°11.8'	N 6°51.3'
10	139°53.8'		330°47.6'	N 4°41.1'	13°21.7'	N 17°58.9'	210°57.7'	S 22°43.0'	202°14.4'	S 21°18.3'	112°14.3'	N 6°51.3'
11	154°56.3'		345°47.8'	N 4°40.1'	28°21.3'	N 17°58.5'	226°00.2'	S 22°43.1'	217°16.9'	S 21°18.4'	127°16.8'	N 6°51.3'
12	169°58.7'		0°48.0'	N 4°39.2'	43°20.9'	N 17°58.0'	241°02.7'	S 22°43.1'	232°19.4'	S 21°18.4'	142°19.3'	N 6°51.4'
13	185°01.2'		15°48.2'	N 4°38.2'	58°20.5'	N 17°57.5'	256°05.2'	S 22°43.1'	247°22.0'	S 21°18.4'	157°21.8'	N 6°51.4'
14	200°03.7'		30°48.4'	N 4°37.3'	73°20.1'	N 17°57.1'	271°07.6'	S 22°43.1'	262°24.5'	S 21°18.4'	172°24.2'	N 6°51.4'
15	215°06.1'		45°48.7'	N 4°36.3'	88°19.7'	N 17°56.6'	286°10.1'	S 22°43.1'	277°27.1'	S 21°18.4'	187°26.7'	N 6°51.4'
16	230°08.6'		60°48.9'	N 4°35.4'	103°19.3'	N 17°56.1'	301°12.6'	S 22°43.1'	292°29.6'	S 21°18.4'	202°29.2'	N 6°51.4'
17	245°11.1'		75°49.1'	N 4°34.4'	118°18.9'	N 17°55.7'	316°15.1'	S 22°43.1'	307°32.2'	S 21°18.5'	217°31.7'	N 6°51.4'
18	260°13.5'		90°49.3'	N 4°33.5'	133°18.5'	N 17°55.2'	331°17.6'	S 22°43.1'	322°34.7'	S 21°18.5'	232°34.2'	N 6°51.4'
19	275°16.0'		105°49.5'	N 4°32.5'	148°18.1'	N 17°54.7'	346°20.1'	S 22°43.1'	337°37.2'	S 21°18.5'	247°36.7'	N 6°51.4'
20	290°18.5'		120°49.8'	N 4°31.6'	163°17.7'	N 17°54.2'	1°22.6'	S 22°43.1'	352°39.8'	S 21°18.5'	262°39.2'	N 6°51.4'
21	305°20.9'		135°50.0'	N 4°30.6'	178°17.3'	N 17°53.8'	16°25.0'	S 22°43.1'	7°42.3'	S 21°18.5'	277°41.7'	N 6°51.4'
22	320°23.4'		150°50.2'	N 4°29.7'	193°16.9'	N 17°53.3'	31°27.5'	S 22°43.1'	22°44.9'	S 21°18.5'	292°44.2'	N 6°51.5'
23	335°25.9'		165°50.4'	N 4°28.7'	208°16.5'	N 17°52.8'	46°30.0'	S 22°43.1'	37°47.4'	S 21°18.6'	307°46.8'	N 6°51.5'
			SD 15.9'	d -0.9'	v -0.4'	d -0.5'	v 2.5'	d -0.0'	v 2.5'	d -0.0'	v 2.5'	d 0.0'
Mer. pass.			11 h 56 m 49 s		9 h 7 m		19 h 55 m		20 h 29 m		2 h 32 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Mars	+Achernar	+Fomalhaut
0	277°25.6'	N 21°22.0'	11.4'	6.3'	55.0'	94°25.0'	44°41.7'	40°49.2'	21°33.0'		45°14.6'	87°56.7'	98°10.4'
1	291°55.9'	N 21°28.3'	11.3'	6.2'	55.1'	93°57.0'	44°14.5'	40°18.9'	21°13.5'		45°45.1'	88°14.4'	98°39.7'
2	306°26.2'	N 21°34.5'	11.2'	6.1'	55.1'	93°29.0'	43°47.4'	39°48.5'	20°54.4'		46°15.7'	88°32.2'	99°09.0'
3	320°56.4'	N 21°40.6'	11.1'	6.0'	55.1'	93°01.0'	43°20.2'	39°18.2'	20°35.8'		46°46.3'	88°50.0'	99°38.3'
4	335°26.6'	N 21°46.6'	11.1'	5.9'	55.1'	92°32.9'	42°53.1'	38°47.8'	20°17.5'		47°16.9'	89°07.8'	100°07.6'
5	349°56.6'	N 21°52.5'	11.0'	5.8'	55.2'	92°04.8'	42°26.1'	38°17.3'	19°59.8'	7°25.2'	47°47.6'	89°25.7'	100°37.0'
6	4°26.6'	N 21°58.3'	10.9'	5.7'	55.2'	91°36.7'	41°59.1'	37°46.9'	19°42.5'	7°51.0'	48°18.3'	89°43.5'	101°06.3'
7	18°56.5'	N 22°04.0'	10.8'	5.6'	55.2'	91°08.5'	41°32.1'	37°16.4'	19°25.8'	8°17.3'	48°49.0'	90°01.4'	101°35.7'
8	33°26.4'	N 22°09.6'	10.8'	5.5'	55.2'	90°40.3'	41°05.2'	36°45.9'	19°09.5'	8°44.1'	49°19.7'	90°19.3'	102°05.2'
9	47°56.1'	N 22°15.1'	10.7'	5.4'	55.3'	90°12.1'	40°38.3'	36°15.4'	18°53.9'	9°11.4'	49°50.5'	90°37.2'	102°34.6'
10	62°25.8'	N 22°20.4'	10.6'	5.3'	55.3'	89°43.9'	40°11.5'	35°44.8'	9°39.0'	9°39.0'	50°21.3'	90°55.1'	103°04.1'
11	76°55.5'	N 22°25.7'	10.5'	5.2'	55.3'	89°15.6'	39°44.7'	35°14.3'	10°07.0'	10°07.0'	50°52.2'	91°13.1'	103°33.6'
12	91°25.0'	N 22°30.9'	10.5'	5.1'	55.3'	88°47.3'	39°18.0'	34°43.7'		10°35.3'	51°23.0'	91°31.0'	104°03.1'
13	105°54.5'	N 22°36.0'	10.4'	5.0'	55.4'	88°18.9'	38°51.3'	34°13.1'		11°03.8'	51°53.9'	91°49.0'	104°32.6'
14	120°23.9'	N 22°40.9'	10.3'	4.8'	55.4'	87°50.6'	38°24.8'	33°42.4'		11°32.5'	52°24.9'	92°07.0'	105°02.2'
15	134°53.2'	N 22°45.8'	10.3'	4.7'	55.4'	87°22.2'	37°58.2'	33°11.8'		12°01.5'	52°55.8'	92°24.9'	105°31.8'
16	149°22.5'	N 22°50.5'	10.2'	4.6'	55.5'	86°53.8'	37°31.8'	32°41.1'		12°30.6'	53°26.8'	92°42.9'	106°01.4'
17	163°51.7'	N 22°55.1'	10.1'	4.5'	55.5'	86°25.3'	37°05.4'	32°10.4'		12°59.9'	53°57.9'	93°01.0'	106°31.0'
18	178°20.8'	N 22°59.6'	10.0'	4.4'	55.5'	85°56.8'	36°39.1'	31°39.6'		13°29.4'	54°28.9'	93°19.0'	107°00.7'
19	192°49.8'	N 23°04.1'	10.0'	4.3'	55.5'	85°28.3'	36°12.8'	31°08.9'		13°59.0'	55°00.1'	93°37.0'	107°30.4'
20	207°18.8'	N 23°08.3'	9.9'	4.2'	55.6'	84°59.7'	35°46.7'	30°38.1'		14°28.7'	55°31.2'	93°55.0'	108°00.1'
21	221°47.7'	N 23°12.5'	9.8'	4.1'	55.6'	84°31.1'	35°20.6'	30°07.3'		14°58.6'	56°02.4'	94°13.1'	108°29.8'
22	236°16.5'	N 23°16.6'	9.8'	3.9'	55.6'	84°02.5'	34°54.7'	29°36.5'		15°28.6'	56°33.6'	94°31.1'	108°59.6'
23	250°45.3'	N 23°20.5'	9.7'	3.8'	55.7'	83°33.9'	34°28.8'	29°05.7'		15°58.7'	57°04.8'	94°49.2'	109°29.3'
Mer. pass.			5 h 42 m SD 15.0'		phase 54%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°22.1'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.5'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	S 52°42.1'				

Friday 11 September 2020 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	350°28.3'	180°50.6'	N 4°27.8'	223°16.1'	N 17°52.3'	61°32.5'	S 22°43.1'	52°49.9'	S 21°18.6'	322°49.3'	N 6°51.5'			
1	5°30.8'	195°50.9'	N 4°26.8'	238°15.7'	N 17°51.8'	76°35.0'	S 22°43.1'	67°52.5'	S 21°18.6'	337°51.8'	N 6°51.5'			
2	20°33.2'	210°51.1'	N 4°25.9'	253°15.3'	N 17°51.4'	91°37.4'	S 22°43.1'	82°55.0'	S 21°18.6'	352°54.3'	N 6°51.5'			
3	35°35.7'	225°51.3'	N 4°24.9'	268°14.9'	N 17°50.9'	106°39.9'	S 22°43.1'	97°57.6'	S 21°18.6'	7°56.8'	N 6°51.5'			
4	50°38.2'	240°51.5'	N 4°24.0'	283°14.5'	N 17°50.4'	121°42.4'	S 22°43.1'	113°00.1'	S 21°18.6'	22°59.3'	N 6°51.5'			
5	65°40.6'	255°51.7'	N 4°23.0'	298°14.1'	N 17°49.9'	136°44.9'	S 22°43.1'	128°02.6'	S 21°18.7'	38°01.8'	N 6°51.5'			
6	80°43.1'	270°52.0'	N 4°22.1'	313°13.7'	N 17°49.4'	151°47.4'	S 22°43.1'	143°05.2'	S 21°18.7'	53°04.3'	N 6°51.5'			
7	95°45.6'	285°52.2'	N 4°21.1'	328°13.3'	N 17°48.9'	166°49.8'	S 22°43.1'	158°07.7'	S 21°18.7'	68°06.9'	N 6°51.5'			
8	110°48.0'	300°52.4'	N 4°20.2'	343°12.9'	N 17°48.5'	181°52.3'	S 22°43.1'	173°10.3'	S 21°18.7'	83°09.4'	N 6°51.5'			
9	125°50.5'	315°52.6'	N 4°19.2'	358°12.5'	N 17°48.0'	196°54.8'	S 22°43.1'	188°12.8'	S 21°18.7'	98°11.9'	N 6°51.5'			
10	140°53.0'	330°52.8'	N 4°18.2'	13°12.1'	N 17°47.5'	211°57.3'	S 22°43.2'	203°15.3'	S 21°18.7'	113°14.4'	N 6°51.5'			
11	155°55.4'	345°53.1'	N 4°17.3'	28°11.7'	N 17°47.0'	226°59.8'	S 22°43.2'	218°17.9'	S 21°18.7'	128°17.0'	N 6°51.5'			
12	170°57.9'	0°53.3'	N 4°16.3'	43°11.3'	N 17°46.5'	242°02.2'	S 22°43.2'	233°20.4'	S 21°18.8'	143°19.5'	N 6°51.5'			
13	186°00.3'	15°53.5'	N 4°15.4'	58°10.9'	N 17°46.0'	257°04.7'	S 22°43.2'	248°23.0'	S 21°18.8'	158°22.0'	N 6°51.5'			
14	201°02.8'	30°53.7'	N 4°14.4'	73°10.5'	N 17°45.5'	272°07.2'	S 22°43.2'	263°25.5'	S 21°18.8'	173°24.5'	N 6°51.5'			
15	216°05.3'	45°53.9'	N 4°13.5'	88°10.1'	N 17°45.0'	287°09.7'	S 22°43.2'	278°28.0'	S 21°18.8'	188°27.1'	N 6°51.5'			
16	231°07.7'	60°54.2'	N 4°12.5'	103°09.7'	N 17°44.5'	302°12.1'	S 22°43.2'	293°30.6'	S 21°18.8'	203°29.6'	N 6°51.5'			
17	246°10.2'	75°54.4'	N 4°11.6'	118°09.3'	N 17°44.0'	317°14.6'	S 22°43.2'	308°33.1'	S 21°18.8'	218°32.1'	N 6°51.5'			
18	261°12.7'	90°54.6'	N 4°10.6'	133°08.9'	N 17°43.6'	332°17.1'	S 22°43.2'	323°35.6'	S 21°18.9'	233°34.7'	N 6°51.5'			
19	276°15.1'	105°54.8'	N 4°09.7'	148°08.5'	N 17°43.1'	347°19.6'	S 22°43.2'	338°38.2'	S 21°18.9'	248°37.2'	N 6°51.5'			
20	291°17.6'	120°55.1'	N 4°08.7'	163°08.1'	N 17°42.6'	2°22.0'	S 22°43.2'	353°40.7'	S 21°18.9'	263°39.8'	N 6°51.5'			
21	306°20.1'	135°55.3'	N 4°07.8'	178°07.7'	N 17°42.1'	17°24.5'	S 22°43.2'	8°43.3'	S 21°18.9'	278°42.3'	N 6°51.5'			
22	321°22.5'	150°55.5'	N 4°06.8'	193°07.3'	N 17°41.6'	32°27.0'	S 22°43.2'	23°45.8'	S 21°18.9'	293°44.8'	N 6°51.5'			
23	336°25.0'	165°55.7'	N 4°05.9'	208°06.9'	N 17°41.1'	47°29.5'	S 22°43.2'	38°48.3'	S 21°18.9'	308°47.4'	N 6°51.5'			
		SD 15.9'	d -1.0'		v -0.4'	d -0.5'		v 2.5'	d -0.0'		v 2.5'	d 0.0'		
Mer. pass.		11 h 56 m 27 s		9 h 7 m			19 h 51 m	20 h 25 m		2 h 28 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Procyon	-Pollux	-Betelgeuse	+Aldebaran	+Capella	+Rigel	+Mars
0	265°14.0'	N 23°24.4'	9.6'	3.7'	55.7'	83°05.2'	34°03.0'	28°34.8'		16°28.8'			57°36.1'
1	279°42.6'	N 23°28.1'	9.5'	3.6'	55.7'	82°36.5'	33°37.4'	28°03.9'		16°59.1'			58°07.4'
2	294°11.1'	N 23°31.7'	9.5'	3.5'	55.8'	82°07.7'	33°11.8'	27°33.0'		17°29.5'			58°38.8'
3	308°39.6'	N 23°35.2'	9.4'	3.4'	55.8'	81°38.9'	32°46.4'	27°02.1'		17°59.9'			59°10.1'
4	323°08.0'	N 23°38.5'	9.3'	3.2'	55.8'	81°10.1'	32°21.1'	26°31.1'		18°30.5'			59°41.6'
5	337°36.4'	N 23°41.8'	9.3'	3.1'	55.8'	80°41.2'	31°55.9'	26°00.2'		19°01.1'			60°13.0'
6	352°04.6'	N 23°44.9'	9.2'	3.0'	55.9'	80°12.3'	31°30.9'	25°29.2'		19°31.8'			60°44.5'
7	6°32.9'	N 23°47.9'	9.1'	2.9'	55.9'	79°43.4'	31°06.0'	24°58.2'		20°02.6'			61°16.1'
8	21°01.0'	N 23°50.7'	9.1'	2.7'	55.9'	79°14.4'	30°41.3'	24°27.1'		20°33.4'			61°47.6'
9	35°29.1'	N 23°53.5'	9.0'	2.6'	56.0'	78°45.4'	30°16.7'	23°56.1'		21°04.3'			62°19.3'
10	49°57.1'	N 23°56.1'	9.0'	2.5'	56.0'	78°16.4'	29°52.3'	23°25.1'		21°35.3'			62°50.9'
11	64°25.0'	N 23°58.6'	8.9'	2.4'	56.0'	77°47.3'	29°28.1'	22°54.0'		22°06.3'			63°22.6'
12	78°52.9'	N 24°01.0'	8.8'	2.2'	56.1'	77°18.2'	29°04.0'	22°22.9'		22°37.4'			63°54.3'
13	93°20.8'	N 24°03.2'	8.8'	2.1'	56.1'	76°49.0'	28°40.2'	21°51.8'		23°08.6'		34°55.6'	64°26.1'
14	107°48.5'	N 24°05.4'	8.7'	2.0'	56.1'	76°19.8'	28°16.5'	21°20.7'		23°39.8'		35°10.8'	64°57.9'
15	122°16.2'	N 24°07.4'	8.6'	1.9'	56.2'	75°50.6'	27°53.1'	20°49.6'		24°11.1'		35°26.3'	65°29.8'
16	136°43.9'	N 24°09.2'	8.6'	1.7'	56.2'	75°21.3'	27°29.9'	20°18.5'		24°42.4'		35°42.2'	66°01.7'
17	151°11.4'	N 24°10.9'	8.5'	1.6'	56.2'	74°52.0'	27°07.0'	19°47.4'		25°13.8'		35°58.4'	66°33.6'
18	165°39.0'	N 24°12.5'	8.5'	1.5'	56.3'	74°22.7'	26°44.3'	19°16.3'		25°45.3'		36°14.9'	67°05.6'
19	180°06.4'	N 24°14.0'	8.4'	1.3'	56.3'	73°53.3'	26°21.9'	18°45.2'		26°16.8'		36°31.7'	67°37.6'
20	194°33.8'	N 24°15.4'	8.4'	1.2'	56.3'	73°23.8'	25°59.7'	18°14.1'		26°48.4'		36°48.8'	68°09.7'
21	209°01.2'	N 24°16.6'	8.3'	1.1'	56.4'	72°54.4'	25°37.9'	17°43.0'	18°37.3'	27°20.0'		37°06.3'	68°41.8'
22	223°28.5'	N 24°17.6'	8.2'	0.9'	56.4'	72°24.9'	25°16.3'	17°11.9'	18°53.0'	27°51.7'	26°15.5'	37°24.0'	69°13.9'
23	237°55.7'	N 24°18.6'	8.2'	0.8'	56.4'	71°55.3'	24°55.1'	16°40.9'	19°09.3'	28°23.4'	26°30.7'	37°42.1'	69°46.1'
Mer. pass.		6 h 33 m SD 15.2'	phase 44%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.1'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	N 16°33.0'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°21.6'	N 89°20.7'
Rigel Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	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	351°27.5'	180°55.9'	N 4°04.9'	223°06.5'	N 17°40.6'		62°31.9'	S 22°43.2'		53°50.9'	S 21°18.9'		323°49.9'	N 6°51.5'				
1	6°29.5'	195°56.2'	N 4°03.9'	238°06.1'	N 17°40.1'		77°34.4'	S 22°43.2'		68°53.4'	S 21°19.0'		338°52.5'	N 6°51.5'				
2	21°32.4'	210°56.4'	N 4°03.0'	253°05.7'	N 17°39.6'		92°36.9'	S 22°43.2'		83°55.9'	S 21°19.0'		353°55.0'	N 6°51.5'				
3	36°34.8'	225°56.6'	N 4°02.0'	268°05.3'	N 17°39.1'		107°39.3'	S 22°43.2'		98°58.5'	S 21°19.0'		8°57.6'	N 6°51.5'				
4	51°37.3'	240°56.8'	N 4°01.1'	283°04.9'	N 17°38.6'		122°41.8'	S 22°43.2'		114°01.0'	S 21°19.0'		24°00.1'	N 6°51.5'				
5	66°39.8'	255°57.0'	N 4°00.1'	298°04.5'	N 17°38.1'		137°44.3'	S 22°43.2'		129°03.6'	S 21°19.0'		39°02.7'	N 6°51.5'				
6	81°42.2'	270°57.3'	N 3°59.2'	313°04.1'	N 17°37.6'		152°46.8'	S 22°43.2'		144°06.1'	S 21°19.0'		54°05.2'	N 6°51.5'				
7	96°44.7'	285°57.5'	N 3°58.2'	328°03.7'	N 17°37.0'		167°49.2'	S 22°43.2'		159°08.6'	S 21°19.1'		69°07.8'	N 6°51.5'				
8	111°47.2'	300°57.7'	N 3°57.3'	343°03.3'	N 17°36.5'		182°51.7'	S 22°43.2'		174°11.2'	S 21°19.1'		84°10.3'	N 6°51.5'				
9	126°49.6'	315°57.9'	N 3°56.3'	358°02.9'	N 17°36.0'		197°54.2'	S 22°43.2'		189°13.7'	S 21°19.1'		99°12.9'	N 6°51.5'				
10	141°52.1'	330°58.1'	N 3°55.4'	13°02.5'	N 17°35.5'		212°56.6'	S 22°43.2'		204°16.2'	S 21°19.1'		114°15.4'	N 6°51.5'				
11	156°54.6'	345°58.4'	N 3°54.4'	28°02.1'	N 17°35.0'		227°59.1'	S 22°43.2'		219°18.8'	S 21°19.1'		129°18.0'	N 6°51.5'				
12	171°57.0'	0°58.6'	N 3°53.4'	43°01.7'	N 17°34.5'		243°01.6'	S 22°43.2'		234°21.3'	S 21°19.1'		144°20.6'	N 6°51.5'				
13	186°59.5'	15°58.8'	N 3°52.5'	58°01.3'	N 17°34.0'		258°04.0'	S 22°43.2'		249°23.8'	S 21°19.1'		159°23.1'	N 6°51.5'				
14	202°02.0'	30°59.0'	N 3°51.5'	73°00.9'	N 17°33.5'		273°06.5'	S 22°43.2'		264°26.4'	S 21°19.2'		174°25.7'	N 6°51.5'				
15	217°04.4'	45°59.3'	N 3°50.6'	88°00.5'	N 17°33.0'		288°09.0'	S 22°43.2'		279°28.9'	S 21°19.2'		189°28.3'	N 6°51.5'				
16	232°06.9'	60°59.5'	N 3°49.6'	103°00.1'	N 17°32.5'		303°11.4'	S 22°43.2'		294°31.4'	S 21°19.2'		204°30.8'	N 6°51.5'				
17	247°09.3'	75°59.7'	N 3°48.7'	117°59.7'	N 17°31.9'		318°13.9'	S 22°43.2'		309°34.0'	S 21°19.2'		219°33.4'	N 6°51.4'				
18	262°11.8'	90°59.9'	N 3°47.7'	132°59.3'	N 17°31.4'		333°16.4'	S 22°43.2'		324°36.5'	S 21°19.2'		234°36.0'	N 6°51.4'				
19	277°14.3'	106°00.1'	N 3°46.7'	147°58.9'	N 17°30.9'		348°18.8'	S 22°43.2'		339°39.0'	S 21°19.2'		249°38.6'	N 6°51.4'				
20	292°16.7'	121°00.4'	N 3°45.8'	162°58.5'	N 17°30.4'		3°21.3'	S 22°43.3'		354°41.6'	S 21°19.2'		264°41.1'	N 6°51.4'				
21	307°19.2'	136°00.6'	N 3°44.8'	177°58.1'	N 17°29.9'		18°23.8'	S 22°43.3'		9°44.1'	S 21°19.3'		279°43.7'	N 6°51.4'				
22	322°21.7'	151°00.8'	N 3°43.9'	192°57.7'	N 17°29.4'		33°26.2'	S 22°43.3'		24°46.6'	S 21°19.3'		294°46.3'	N 6°51.4'				
23	337°24.1'	166°01.0'	N 3°42.9'	207°57.3'	N 17°28.8'		48°28.7'	S 22°43.3'		39°49.2'	S 21°19.3'		309°48.9'	N 6°51.4'				
		SD 15.9'	d -1.0'		v -0.4'	d -0.5'		v 2.5'	d -0.0'		v 2.5'	d -0.0'		v 2.6'	d -0.0'			
Mer. pass.		11 h 56 m 6 s		9 h 8 m			19 h 47 m			20 h 21 m			2 h 24 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Venus	-Procyon	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	252°22.9'	N 24°19.4'	8.1'	0.7'	56.5'	71°25.7'	28°04.0'	24°34.2'	16°09.9'	19°26.3'	26°46.4'	28°55.2'	38°00.4'
1	266°50.1'	N 24°20.0'	8.1'	0.5'	56.5'	70°56.1'	27°34.9'	24°13.7'	15°38.9'	19°43.9'	27°02.6'	29°27.1'	38°19.0'
2	281°17.1'	N 24°20.6'	8.0'	0.4'	56.6'	70°26.4'	27°05.9'	23°53.5'	15°08.0'	20°02.1'	27°19.3'	29°59.0'	38°37.9'
3	295°44.2'	N 24°21.0'	8.0'	0.3'	56.6'	69°56.7'	26°36.8'	23°33.8'	14°37.1'	20°20.8'	27°36.3'	30°30.9'	38°57.0'
4	310°11.2'	N 24°21.2'	7.9'	0.1'	56.6'	69°27.0'	26°07.7'	23°14.5'	14°06.2'	20°40.2'	27°53.9'	31°02.9'	39°16.5'
5	324°38.1'	N 24°21.4'	7.9'	-0.0'	56.7'	68°57.2'	25°38.6'	22°55.6'	13°35.5'	21°00.1'	28°11.8'	31°35.0'	39°36.1'
6	339°05.0'	N 24°21.3'	7.8'	-0.2'	56.7'	68°27.3'	25°09.4'	22°37.1'	13°04.8'	21°20.5'	28°30.2'	32°07.1'	39°56.1'
7	353°31.8'	N 24°21.2'	7.8'	-0.3'	56.7'	67°57.5'	24°40.3'	22°19.2'	12°34.2'	21°41.4'	28°48.9'	32°39.2'	40°16.3'
8	7°58.6'	N 24°20.9'	7.7'	-0.4'	56.8'	67°27.5'	24°11.0'	22°01.7'	12°03.8'	22°02.7'	29°08.1'	33°11.5'	40°36.7'
9	22°25.3'	N 24°20.5'	7.7'	-0.6'	56.8'	66°57.6'	23°41.8'	21°44.8'	11°33.5'	22°24.5'	29°27.7'	33°43.7'	40°57.4'
10	36°52.1'	N 24°19.9'	7.7'	-0.7'	56.8'	66°27.6'	23°12.6'	21°28.4'	11°03.3'	22°46.8'	29°47.6'	34°16.0'	41°18.3'
11	51°18.7'	N 24°19.2'	7.6'	-0.9'	56.9'	65°57.5'	22°43.3'	21°12.6'	10°33.4'	23°09.5'	30°07.8'	34°48.4'	41°39.5'
12	65°45.3'	N 24°18.3'	7.6'	-1.0'	56.9'	65°27.4'	22°14.0'		10°03.7'	23°32.5'	30°28.5'	35°20.8'	42°00.9'
13	80°11.9'	N 24°17.3'	7.5'	-1.1'	57.0'	64°57.3'	21°44.7'		9°34.3'	23°56.0'	30°49.5'	35°53.3'	42°22.5'
14	94°38.5'	N 24°16.2'	7.5'	-1.3'	57.0'	64°27.1'	21°15.4'		9°05.2'	24°19.8'	31°10.8'	36°25.8'	42°44.3'
15	109°05.0'	N 24°14.9'	7.5'	-1.4'	57.0'	63°56.9'	20°46.0'		8°36.5'	24°44.0'	31°32.4'	36°58.4'	43°06.4'
16	123°31.4'	N 24°13.5'	7.4'	-1.6'	57.1'	63°26.6'	20°16.7'		8°08.3'	25°08.5'	31°54.3'	37°31.0'	43°28.6'
17	137°57.9'	N 24°11.9'	7.4'	-1.7'	57.1'	62°56.3'	19°47.3'		7°40.6'	25°33.3'	32°16.6'	38°03.7'	43°51.1'
18	152°24.2'	N 24°10.2'	7.4'	-1.9'	57.1'	62°25.9'	19°18.0'			25°58.5'	32°39.2'	38°36.4'	44°13.8'
19	166°50.6'	N 24°08.3'	7.3'	-2.0'	57.2'	61°55.5'	18°48.6'			26°23.9'	33°02.0'	39°09.2'	44°36.6'
20	181°16.9'	N 24°06.3'	7.3'	-2.1'	57.2'	61°25.1'	18°19.2'			26°49.7'	33°25.1'	39°42.0'	44°59.7'
21	195°43.2'	N 24°04.2'	7.3'	-2.3'	57.3'	60°54.6'	17°49.8'			27°15.7'	33°48.6'	40°14.9'	45°23.0'
22	210°09.5'	N 24°01.9'	7.2'	-2.4'	57.3'	60°24.1'	17°20.5'			27°42.0'	34°12.2'	40°47.8'	45°46.5'
23	224°35.7'	N 23°59.4'	7.2'	-2.6'	57.3'	59°53.5'	16°51.1'			28°08.6'	34°36.2'	41°20.8'	46°10.1'
Mer. pass.		7 h 27 m SD 15.4'	phase 34%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.4'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°21.1'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.8'	S 28°59.8'	Achernar	+0.5	335°22.5'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	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°26.6'	181°01.2'	N 3°42.0'	222°56.9'	N 17°28.3'		63°31.2'	S 22°43.3'		54°51.7'	S 21°19.3'		324°51.4'	N 6°51.4'				
1	7°29.1'	196°01.5'	N 3°41.0'	237°56.5'	N 17°27.8'		78°33.6'	S 22°43.3'		69°54.2'	S 21°19.3'		339°54.0'	N 6°51.4'				
2	22°31.5'	211°01.7'	N 3°40.0'	252°56.1'	N 17°27.3'		93°36.1'	S 22°43.3'		84°56.8'	S 21°19.3'		354°56.6'	N 6°51.3'				
3	37°34.0'	226°01.9'	N 3°39.1'	267°55.7'	N 17°26.8'		108°38.6'	S 22°43.3'		99°59.3'	S 21°19.3'		9°59.2'	N 6°51.3'				
4	52°36.5'	241°02.1'	N 3°38.1'	282°55.3'	N 17°26.2'		123°41.0'	S 22°43.3'		115°01.8'	S 21°19.4'		25°01.8'	N 6°51.3'				
5	67°38.9'	256°02.4'	N 3°37.2'	297°54.9'	N 17°25.7'		138°43.5'	S 22°43.3'		130°04.4'	S 21°19.4'		40°04.4'	N 6°51.3'				
6	82°41.4'	271°02.6'	N 3°36.2'	312°54.5'	N 17°25.2'		153°46.0'	S 22°43.3'		145°06.9'	S 21°19.4'		55°07.0'	N 6°51.3'				
7	97°43.8'	286°02.8'	N 3°35.3'	327°54.1'	N 17°24.7'		168°48.4'	S 22°43.3'		160°09.4'	S 21°19.4'		70°09.6'	N 6°51.3'				
8	112°46.3'	301°03.0'	N 3°34.3'	342°53.7'	N 17°24.1'		183°50.9'	S 22°43.3'		175°12.0'	S 21°19.4'		85°12.1'	N 6°51.3'				
9	127°48.8'	316°03.2'	N 3°33.3'	357°53.3'	N 17°23.6'		198°53.3'	S 22°43.3'		190°14.5'	S 21°19.4'		100°14.7'	N 6°51.2'				
10	142°51.2'	331°03.5'	N 3°32.4'	12°52.9'	N 17°23.1'		213°55.8'	S 22°43.3'		205°17.0'	S 21°19.4'		115°17.3'	N 6°51.2'				
11	157°53.7'	346°03.7'	N 3°31.4'	27°52.5'	N 17°22.5'		228°58.3'	S 22°43.3'		220°19.6'	S 21°19.5'		130°19.9'	N 6°51.2'				
12	172°56.2'	1°03.9'	N 3°30.5'	42°52.1'	N 17°22.0'		244°00.7'	S 22°43.3'		235°22.1'	S 21°19.5'		145°22.5'	N 6°51.2'				
13	187°58.6'	16°04.1'	N 3°29.5'	57°51.7'	N 17°21.5'		259°03.2'	S 22°43.3'		250°24.6'	S 21°19.5'		160°25.1'	N 6°51.2'				
14	203°01.1'	31°04.3'	N 3°28.5'	72°51.3'	N 17°20.9'		274°05.6'	S 22°43.3'		265°27.1'	S 21°19.5'		175°27.7'	N 6°51.2'				
15	218°03.6'	46°04.6'	N 3°27.6'	87°50.8'	N 17°20.4'		289°08.1'	S 22°43.3'		280°29.7'	S 21°19.5'		190°30.3'	N 6°51.1'				
16	233°06.0'	61°04.8'	N 3°26.6'	102°50.4'	N 17°19.9'		304°10.6'	S 22°43.3'		295°32.2'	S 21°19.5'		205°32.9'	N 6°51.1'				
17	248°08.5'	76°05.0'	N 3°25.7'	117°50.0'	N 17°19.3'		319°13.0'	S 22°43.3'		310°34.7'	S 21°19.5'		220°35.5'	N 6°51.1'				
18	263°11.0'	91°05.2'	N 3°24.7'	132°49.6'	N 17°18.8'		334°15.5'	S 22°43.3'		325°37.3'	S 21°19.6'		235°38.2'	N 6°51.1'				
19	278°13.4'	106°05.5'	N 3°23.8'	147°49.2'	N 17°18.3'		349°17.9'	S 22°43.3'		340°39.8'	S 21°19.6'		250°40.8'	N 6°51.1'				
20	293°15.9'	121°05.7'	N 3°22.8'	162°48.8'	N 17°17.7'		4°20.4'	S 22°43.3'		355°42.3'	S 21°19.6'		265°43.4'	N 6°51.1'				
21	308°18.3'	136°05.9'	N 3°21.8'	177°48.4'	N 17°17.2'		19°22.8'	S 22°43.3'		10°44.9'	S 21°19.6'		280°46.0'	N 6°51.0'				
22	323°20.8'	151°06.3'	N 3°20.9'	192°48.0'	N 17°16.7'		34°25.3'	S 22°43.3'		25°47.4'	S 21°19.6'		295°48.6'	N 6°51.0'				
23	338°23.3'	166°06.3'	N 3°19.9'	207°47.6'	N 17°16.1'		49°27.8'	S 22°43.3'		40°49.9'	S 21°19.6'		310°51.2'	N 6°51.0'				
		SD 15.9'	d -1.0'		v -0.4'	d -0.5'		v 2.5'	d -0.0'		v 2.5'	d -0.0'		v 2.6'	d -0.0'			
Mer. pass.		11 h 55 m 45 s		9 h 8 m			19 h 43 m			20 h 17 m			2 h 20 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Procyon	-Venus	-Pollux	+Betelgeuse	+Capella	+Aldebaran	+Rigel
0	239°02.0'	N 23°56.8'	7.2'	-2.7'	57.4'	59°22.9'		16°21.8'		28°35.4'	35°00.4'	41°53.8'	46°33.9'
1	253°28.1'	N 23°54.1'	7.2'	-2.9'	57.4'	58°52.2'		15°52.5'		29°02.4'	35°24.8'	42°26.9'	46°57.9'
2	267°54.3'	N 23°51.2'	7.1'	-3.0'	57.5'	58°21.5'		15°23.2'		29°29.7'	35°49.5'	43°00.0'	47°22.1'
3	282°20.4'	N 23°48.2'	7.1'	-3.2'	57.5'	57°50.7'		14°53.9'		29°57.2'	36°14.4'	43°33.2'	47°46.5'
4	296°46.5'	N 23°45.0'	7.1'	-3.3'	57.5'	57°19.9'		14°24.7'		30°24.9'	36°39.6'	44°06.4'	48°11.0'
5	311°12.6'	N 23°41.7'	7.1'	-3.5'	57.6'	56°49.1'		13°55.6'		30°52.9'	37°04.9'	44°39.7'	48°35.7'
6	325°38.7'	N 23°38.3'	7.1'	-3.6'	57.6'	56°18.2'		13°26.5'		31°21.0'	37°30.5'	45°13.1'	49°00.6'
7	340°04.8'	N 23°34.7'	7.0'	-3.8'	57.6'	55°47.2'		12°57.5'		31°49.3'	37°56.3'	45°46.4'	49°25.6'
8	354°30.8'	N 23°30.9'	7.0'	-3.9'	57.7'	55°16.3'		12°28.6'		32°17.9'	38°22.3'	46°19.9'	49°50.8'
9	8°56.8'	N 23°27.0'	7.0'	-4.1'	57.7'	54°45.2'		11°59.8'		32°46.6'	38°48.5'	46°53.4'	50°16.2'
10	23°22.8'	N 23°22.9'	7.0'	-4.2'	57.8'	54°14.1'		11°31.1'		33°15.5'	39°14.9'	47°26.9'	50°41.7'
11	37°48.8'	N 23°18.7'	7.0'	-4.3'	57.8'	53°43.0'		11°02.6'		33°44.5'	39°41.6'	48°00.5'	51°07.3'
12	52°14.8'	N 23°14.4'	7.0'	-4.5'	57.8'	53°11.9'		10°34.3'		34°13.7'	40°08.3'	48°34.1'	51°33.1'
13	66°40.7'	N 23°09.9'	7.0'	-4.6'	57.9'	52°40.6'		10°06.1'		34°43.1'	40°35.3'	49°07.8'	51°59.1'
14	81°06.7'	N 23°05.3'	6.9'	-4.8'	57.9'	52°09.4'		9°38.3'		35°12.7'	41°02.5'	49°41.6'	52°25.2'
15	95°32.6'	N 23°00.5'	6.9'	-4.9'	58.0'	51°38.1'		9°10.7'		35°42.4'	41°29.8'	50°15.4'	52°51.4'
16	109°58.6'	N 22°55.5'	6.9'	-5.1'	58.0'	51°06.7'		8°43.5'		36°12.2'	41°57.3'	50°49.2'	53°17.8'
17	124°24.5'	N 22°50.5'	6.9'	-5.2'	58.0'	50°35.3'		8°16.7'	8°12.6'	36°42.2'	42°25.0'	51°23.1'	53°44.3'
18	138°50.4'	N 22°45.2'	6.9'	-5.4'	58.1'	50°03.9'		7°50.4'	8°42.0'	37°12.4'	42°52.8'	51°57.1'	54°10.9'
19	153°16.3'	N 22°39.9'	6.9'	-5.5'	58.1'	49°32.4'		7°24.8'	9°11.9'	37°42.7'	43°20.8'	52°31.1'	54°37.7'
20	167°42.2'	N 22°34.4'	6.9'	-5.7'	58.2'	49°00.9'			9°42.4'	38°13.1'	43°49.0'	53°05.1'	55°04.6'
21	182°08.2'	N 22°28.7'	6.9'	-5.8'	58.2'	48°29.3'			10°13.3'	38°43.6'	44°17.3'	53°39.2'	55°31.7'
22	196°34.1'	N 22°22.9'	6.9'	-6.0'	58.2'	47°57.7'			10°44.5'	39°14.3'	44°45.7'	54°13.4'	55°58.8'
23	210°60.0'	N 22°16.9'	6.9'	-6.1'	58.3'	47°26.0'	20°50.2'		11°16.1'	39°45.1'	45°14.3'	54°47.6'	56°26.1'
Mer. pass.		8 h 23 m SD 15.6'	phase 25%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.4'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°20.7'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars		
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	353°25.7'	181°06.6'	N 3°19.0'	222°47.2'	N 17°15.6'	64°30.2'	S 22°43.3'	55°52.4'	S 21°19.6'	325°53.8'	N 6°51.0'	
1	8°28.2'	196°06.8'	N 3°18.0'	237°46.8'	N 17°15.0'	79°32.7'	S 22°43.3'	70°55.0'	S 21°19.7'	340°56.5'	N 6°51.0'	
2	23°30.7'	211°07.0'	N 3°17.0'	252°46.4'	N 17°14.5'	94°35.1'	S 22°43.3'	85°57.5'	S 21°19.7'	355°59.1'	N 6°50.9'	
3	38°33.1'	226°07.2'	N 3°16.1'	267°46.0'	N 17°13.9'	109°37.6'	S 22°43.3'	101°00.0'	S 21°19.7'	11°01.7'	N 6°50.9'	
4	53°35.6'	241°07.5'	N 3°15.1'	282°45.6'	N 17°13.4'	124°40.0'	S 22°43.3'	116°02.6'	S 21°19.7'	26°04.3'	N 6°50.9'	
5	68°38.1'	256°07.7'	N 3°14.2'	297°45.2'	N 17°12.9'	139°42.5'	S 22°43.3'	131°05.1'	S 21°19.7'	41°06.9'	N 6°50.9'	
6	83°40.5'	271°07.9'	N 3°13.2'	312°44.8'	N 17°12.3'	154°44.9'	S 22°43.3'	146°07.6'	S 21°19.7'	56°09.6'	N 6°50.8'	
7	98°43.0'	286°08.1'	N 3°12.2'	327°44.4'	N 17°11.8'	169°47.4'	S 22°43.3'	161°10.1'	S 21°19.7'	71°12.2'	N 6°50.8'	
8	113°45.4'	301°08.3'	N 3°11.3'	342°44.0'	N 17°11.2'	184°49.8'	S 22°43.3'	176°12.7'	S 21°19.7'	86°14.8'	N 6°50.8'	
9	128°47.9'	316°08.6'	N 3°10.3'	357°43.6'	N 17°10.7'	199°52.3'	S 22°43.3'	191°15.2'	S 21°19.8'	101°17.5'	N 6°50.8'	
10	143°50.4'	331°08.8'	N 3°09.3'	12°43.2'	N 17°10.1'	214°54.7'	S 22°43.3'	206°17.7'	S 21°19.8'	116°20.1'	N 6°50.7'	
11	158°52.8'	346°09.0'	N 3°08.4'	27°42.8'	N 17°09.6'	229°57.2'	S 22°43.3'	221°20.2'	S 21°19.8'	131°22.7'	N 6°50.7'	
12	173°55.3'	1°09.2'	N 3°07.4'	42°42.4'	N 17°09.0'	244°59.6'	S 22°43.3'	236°22.8'	S 21°19.8'	146°25.4'	N 6°50.7'	
13	188°57.8'	16°09.5'	N 3°06.5'	57°42.0'	N 17°08.5'	260°02.1'	S 22°43.3'	251°25.3'	S 21°19.8'	161°28.0'	N 6°50.7'	
14	204°00.2'	31°09.7'	N 3°05.5'	72°41.6'	N 17°07.9'	275°04.5'	S 22°43.3'	266°27.8'	S 21°19.8'	176°30.6'	N 6°50.6'	
15	219°02.7'	46°09.9'	N 3°04.5'	87°41.2'	N 17°07.4'	290°07.0'	S 22°43.3'	281°30.3'	S 21°19.8'	191°33.3'	N 6°50.6'	
16	234°05.2'	61°10.1'	N 3°03.6'	102°40.8'	N 17°06.8'	305°09.4'	S 22°43.3'	296°32.9'	S 21°19.9'	206°35.9'	N 6°50.6'	
17	249°07.6'	76°10.3'	N 3°02.6'	117°40.3'	N 17°06.3'	320°11.9'	S 22°43.3'	311°35.4'	S 21°19.9'	221°38.6'	N 6°50.6'	
18	264°10.1'	91°10.6'	N 3°01.7'	132°39.9'	N 17°05.7'	335°14.3'	S 22°43.3'	326°37.9'	S 21°19.9'	236°41.2'	N 6°50.5'	
19	279°12.6'	106°10.8'	N 3°00.7'	147°39.5'	N 17°05.1'	350°16.8'	S 22°43.3'	341°40.5'	S 21°19.9'	251°43.8'	N 6°50.5'	
20	294°15.0'	121°11.0'	N 2°59.7'	162°39.1'	N 17°04.6'	5°19.2'	S 22°43.3'	356°43.0'	S 21°19.9'	266°46.5'	N 6°50.5'	
21	309°17.5'	136°11.2'	N 2°58.8'	177°38.7'	N 17°04.0'	20°21.7'	S 22°43.3'	11°45.5'	S 21°19.9'	281°49.1'	N 6°50.4'	
22	324°19.9'	151°11.5'	N 2°57.8'	192°38.3'	N 17°03.5'	35°24.1'	S 22°43.3'	26°48.0'	S 21°19.9'	296°51.8'	N 6°50.4'	
23	339°22.4'	166°11.7'	N 2°56.8'	207°37.9'	N 17°02.9'	50°26.6'	S 22°43.3'	41°50.6'	S 21°19.9'	311°54.4'	N 6°50.4'	
		SD 15.9'	d -1.0'		v -0.4'	d -0.6'		v 2.5'	d -0.0'		v 2.6'	d -0.0'
Mer. pass.		11 h 55 m	24 s		9 h 9 m		19 h 39 m		20 h 13 m		2 h 16 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Regulus	-Venus	+Pollux	+Procyon	+Betelgeuse	+Capella	+Sirius
0	225°25.9'	N 22°10.8'	6.9'	-6.2'	58.3'	46°54.3'	25°25.4'		11°48.1'	21°05.9'	40°16.1'	45°43.1'	
1	239°51.8'	N 22°04.6'	6.9'	-6.4'	58.4'	46°22.5'	24°51.4'		12°20.2'	21°22.3'	40°47.1'	46°12.0'	47°01.2'
2	254°17.7'	N 21°58.2'	6.9'	-6.5'	58.4'	45°50.7'	24°17.4'		12°52.6'	21°39.5'	41°18.3'	46°41.0'	47°16.5'
3	268°43.6'	N 21°51.6'	6.9'	-6.7'	58.4'	45°18.9'	23°43.5'		13°25.2'	21°57.3'	41°49.6'	47°10.2'	47°32.0'
4	283°09.5'	N 21°45.0'	6.9'	-6.8'	58.5'	44°47.0'	23°09.4'		13°58.1'	22°15.7'	42°21.0'	47°39.5'	47°47.8'
5	297°35.5'	N 21°38.1'	6.9'	-7.0'	58.5'	44°15.1'	22°35.4'		14°31.1'	22°34.8'	42°52.5'	48°08.9'	48°03.9'
6	312°01.4'	N 21°31.2'	6.9'	-7.1'	58.5'	43°43.1'	22°01.3'		15°04.2'	22°54.5'	43°24.1'	48°38.4'	48°20.3'
7	326°27.3'	N 21°24.1'	7.0'	-7.3'	58.6'	43°11.1'	21°27.3'		15°37.6'	23°14.7'	43°55.8'	49°08.1'	48°36.9'
8	340°53.3'	N 21°16.8'	7.0'	-7.4'	58.6'	42°39.0'	20°53.2'		16°11.0'	23°35.5'	44°27.6'	49°37.9'	48°53.8'
9	355°19.3'	N 21°09.4'	7.0'	-7.5'	58.7'	42°06.9'	20°19.1'		16°44.6'	23°56.9'	44°59.6'	50°07.8'	49°10.9'
10	9°45.2'	N 21°01.9'	7.0'	-7.7'	58.7'	41°34.8'	19°45.0'		17°18.3'	24°18.8'	45°31.6'	50°37.9'	49°28.3'
11	24°11.2'	N 20°54.2'	7.0'	-7.8'	58.7'	41°02.6'	19°10.8'		17°52.2'	24°41.1'	46°03.7'	51°08.0'	49°45.9'
12	38°37.2'	N 20°46.4'	7.0'	-8.0'	58.8'	40°30.4'	18°36.7'		18°26.1'	25°04.0'	46°35.9'	51°38.3'	50°03.8'
13	53°03.2'	N 20°38.5'	7.0'	-8.1'	58.8'		18°02.6'		19°00.2'	25°27.3'	47°08.3'	52°08.7'	50°22.0'
14	67°29.2'	N 20°30.4'	7.0'	-8.2'	58.9'		17°28.5'		19°34.3'	25°51.1'	47°40.7'	52°39.2'	50°40.3'
15	81°55.3'	N 20°22.1'	7.1'	-8.4'	58.9'		16°54.5'		20°08.6'	26°15.3'	48°13.2'	53°09.8'	50°58.9'
16	96°21.3'	N 20°13.8'	7.1'	-8.5'	58.9'		16°20.4'		20°42.9'	26°39.8'	48°45.8'	53°40.5'	51°17.8'
17	110°47.4'	N 20°05.3'	7.1'	-8.6'	59.0'		15°46.4'		21°17.4'	27°04.8'	49°18.4'	54°11.3'	51°36.8'
18	125°13.5'	N 19°56.6'	7.1'	-8.8'	59.0'		15°12.4'	7°36.5'	21°51.9'	27°30.2'	49°51.2'	54°42.2'	51°56.1'
19	139°39.6'	N 19°47.8'	7.1'	-8.9'	59.0'		14°38.5'	8°03.4'	22°26.5'	27°55.9'	50°24.1'	55°13.2'	52°15.7'
20	154°05.7'	N 19°38.9'	7.1'	-9.0'	59.1'		14°04.7'	8°31.0'	23°01.2'	28°22.0'	50°57.0'	55°44.4'	52°35.4'
21	168°31.9'	N 19°29.9'	7.2'	-9.2'	59.1'		13°30.9'	8°59.2'	23°35.9'	28°48.4'	51°30.0'	56°15.6'	52°55.4'
22	182°58.0'	N 19°20.7'	7.2'	-9.3'	59.2'		12°57.2'	9°28.0'	24°10.8'	29°15.2'	52°03.1'	56°46.9'	53°15.5'
23	197°24.2'	N 19°11.4'	7.2'	-9.4'	59.2'		12°23.6'	9°57.1'	24°45.7'	29°42.3'	52°36.3'	57°18.3'	53°35.9'
Mer. pass.		9 h 19 m	SD 15.9'	phase 16%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.2'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.6'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°20.2'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	354°24.9'	181°11.9'	N 2°55.9'	222°37.5'	N 17°02.3'	65°29.0'	S 22°43.3'	56°53.1'	S 21°20.0'	326°57.1'	N 6°50.3'	
1	9°27.3'	196°12.1'	N 2°54.9'	237°37.1'	N 17°01.8'	80°31.5'	S 22°43.3'	71°55.6'	S 21°20.0'	341°59.7'	N 6°50.3'	
2	24°29.8'	211°12.3'	N 2°54.0'	252°36.7'	N 17°01.2'	95°33.9'	S 22°43.3'	86°58.1'	S 21°20.0'	357°02.4'	N 6°50.3'	
3	39°32.3'	226°12.6'	N 2°53.0'	267°36.3'	N 17°00.7'	110°36.4'	S 22°43.3'	102°00.6'	S 21°20.0'	12°05.1'	N 6°50.3'	
4	54°34.7'	241°12.8'	N 2°52.0'	282°35.9'	N 17°00.1'	125°38.8'	S 22°43.3'	117°03.2'	S 21°20.0'	27°07.7'	N 6°50.2'	
5	69°37.2'	256°13.0'	N 2°51.1'	297°35.5'	N 16°59.5'	140°41.3'	S 22°43.3'	132°05.7'	S 21°20.0'	42°10.4'	N 6°50.2'	
6	84°39.7'	271°13.2'	N 2°50.1'	312°35.1'	N 16°59.0'	155°43.7'	S 22°43.3'	147°08.2'	S 21°20.0'	57°13.0'	N 6°50.2'	
7	99°42.1'	286°13.5'	N 2°49.1'	327°34.7'	N 16°58.4'	170°46.2'	S 22°43.3'	162°10.7'	S 21°20.0'	72°15.7'	N 6°50.1'	
8	114°44.6'	301°13.7'	N 2°48.2'	342°34.3'	N 16°57.8'	185°48.6'	S 22°43.3'	177°13.3'	S 21°20.1'	87°18.4'	N 6°50.1'	
9	129°47.1'	316°13.9'	N 2°47.2'	357°33.9'	N 16°57.3'	200°51.0'	S 22°43.3'	192°15.8'	S 21°20.1'	102°21.0'	N 6°50.1'	
10	144°49.5'	331°14.1'	N 2°46.3'	12°33.5'	N 16°56.7'	215°53.5'	S 22°43.3'	207°18.3'	S 21°20.1'	117°23.7'	N 6°50.0'	
11	159°52.0'	346°14.3'	N 2°45.3'	27°33.1'	N 16°56.1'	230°55.9'	S 22°43.3'	222°20.8'	S 21°20.1'	132°26.4'	N 6°50.0'	
12	174°54.4'	1°14.6'	N 2°44.3'	42°32.7'	N 16°55.5'	245°58.4'	S 22°43.3'	237°23.4'	S 21°20.1'	147°29.0'	N 6°49.9'	
13	189°56.9'	16°14.8'	N 2°43.4'	57°32.3'	N 16°55.0'	261°00.8'	S 22°43.3'	252°25.9'	S 21°20.1'	162°31.7'	N 6°49.9'	
14	204°59.4'	31°15.0'	N 2°42.4'	72°31.9'	N 16°54.4'	276°03.3'	S 22°43.3'	267°28.4'	S 21°20.1'	177°34.4'	N 6°49.9'	
15	220°01.8'	46°15.2'	N 2°41.4'	87°31.4'	N 16°53.8'	291°05.7'	S 22°43.3'	282°30.9'	S 21°20.1'	192°37.1'	N 6°49.8'	
16	235°04.3'	61°15.5'	N 2°40.5'	102°31.0'	N 16°53.3'	306°08.1'	S 22°43.3'	297°33.4'	S 21°20.2'	207°39.7'	N 6°49.8'	
17	250°06.8'	76°15.7'	N 2°39.5'	117°30.6'	N 16°52.7'	321°10.6'	S 22°43.3'	312°36.0'	S 21°20.2'	222°42.4'	N 6°49.8'	
18	265°09.2'	91°15.9'	N 2°38.5'	132°30.2'	N 16°52.1'	336°13.0'	S 22°43.3'	327°38.5'	S 21°20.2'	237°45.1'	N 6°49.7'	
19	280°11.7'	106°16.1'	N 2°37.6'	147°29.8'	N 16°51.5'	351°15.5'	S 22°43.3'	342°41.0'	S 21°20.2'	252°47.8'	N 6°49.7'	
20	295°14.2'	121°16.3'	N 2°36.6'	162°29.4'	N 16°50.9'	6°17.9'	S 22°43.3'	357°43.5'	S 21°20.2'	267°50.5'	N 6°49.7'	
21	310°16.6'	136°16.6'	N 2°35.7'	177°29.0'	N 16°50.4'	21°20.3'	S 22°43.3'	12°46.1'	S 21°20.2'	282°53.2'	N 6°49.6'	
22	325°19.1'	151°16.8'	N 2°34.7'	192°28.6'	N 16°49.8'	36°22.8'	S 22°43.3'	27°48.6'	S 21°20.2'	297°55.8'	N 6°49.6'	
23	340°21.5'	166°17.0'	N 2°33.7'	207°28.2'	N 16°49.2'	51°25.2'	S 22°43.3'	42°51.1'	S 21°20.2'	312°58.5'	N 6°49.5'	
		SD 15.9'	d -1.0'	v -0.4'	d -0.6'	v 2.4'	d 0.0'	v 2.5'	d -0.0'	v 2.7'	d -0.0'	
Mer. pass.		11 h 55 m 2 s		9 h 10 m		19 h 35 m		20 h 9 m		2 h 12 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	+Venus	+Pollux	+Procyon	+Betelgeuse	+Sirius	+Capella	+Adhara
0	211°50.4'	N 19°02.0'	7.2'	-9.6'	59.2'	11°50.2'	10°26.7'	25°20.7'	30°09.6'	53°09.5'	53°56.5'	57°49.8'	
1	226°16.7'	N 18°52.4'	7.3'	-9.7'	59.3'	11°17.0'	10°56.6'	25°55.7'	30°37.3'	53°42.9'	54°17.3'	58°21.3'	
2	240°42.9'	N 18°42.7'	7.3'	-9.8'	59.3'	10°43.9'	11°26.7'	26°30.8'	31°05.2'	54°16.3'	54°38.3'	58°53.0'	
3	255°09.2'	N 18°32.9'	7.3'	-10.0'	59.3'	10°11.1'	11°57.2'	27°06.0'	31°33.4'	54°49.7'	54°59.5'	59°24.8'	
4	269°35.5'	N 18°22.9'	7.3'	-10.1'	59.4'	9°38.6'	12°27.9'	27°41.2'	32°01.8'	55°23.3'	55°20.8'	59°56.6'	
5	284°01.8'	N 18°12.8'	7.4'	-10.2'	59.4'	9°06.4'	12°58.8'	28°16.6'	32°30.5'	55°56.9'	55°42.4'	60°28.5'	
6	298°28.2'	N 18°02.6'	7.4'	-10.3'	59.4'	8°34.7'	13°29.9'	28°51.9'	32°59.5'	56°30.6'	56°04.2'	61°00.5'	
7	312°54.6'	N 17°52.3'	7.4'	-10.5'	59.5'	8°03.5'	14°01.2'	29°27.3'	33°28.7'	57°04.4'	56°26.1'	61°32.6'	61°56.1'
8	327°21.0'	N 17°41.8'	7.4'	-10.6'	59.5'	7°33.0'	14°32.7'	30°02.8'	33°58.1'	57°38.2'	56°48.2'	62°04.8'	62°11.2'
9	341°47.4'	N 17°31.2'	7.5'	-10.7'	59.5'		15°04.3'	30°38.4'	34°27.7'	58°12.1'	57°10.6'	62°37.0'	62°26.4'
10	356°13.9'	N 17°20.5'	7.5'	-10.8'	59.6'		15°36.1'	31°14.0'	34°57.5'	58°46.1'	57°33.0'	63°09.4'	62°41.8'
11	10°40.4'	N 17°09.7'	7.5'	-10.9'	59.6'		16°08.0'	31°49.6'	35°27.5'	59°20.1'	57°55.7'	63°41.8'	62°57.4'
12	25°06.9'	N 16°58.8'	7.5'	-11.1'	59.6'		16°40.0'	32°25.3'	35°57.8'	59°54.2'	58°18.5'	64°14.2'	63°13.1'
13	39°33.4'	N 16°47.7'	7.6'	-11.2'	59.7'		17°12.2'	33°01.1'	36°28.2'	60°28.4'	58°41.5'	64°46.8'	63°29.1'
14	53°60.0'	N 16°36.5'	7.6'	-11.3'	59.7'		17°44.4'	33°36.9'	36°58.8'	61°02.6'	59°04.6'	65°19.4'	63°45.2'
15	68°26.6'	N 16°25.2'	7.6'	-11.4'	59.7'		18°16.8'	34°12.8'	37°29.5'	61°36.9'	59°28.0'	65°52.1'	64°01.4'
16	82°53.2'	N 16°13.8'	7.7'	-11.5'	59.8'		18°49.2'	34°48.7'	38°00.5'	62°11.2'	59°51.4'	66°24.9'	64°17.9'
17	97°19.9'	N 16°02.3'	7.7'	-11.6'	59.8'		19°21.7'	35°24.7'	38°31.6'	62°45.6'	60°15.0'	66°57.7'	64°34.5'
18	111°46.6'	N 15°50.7'	7.7'	-11.7'	59.8'		19°54.4'	36°00.7'	39°02.9'	63°20.1'	60°38.8'	67°30.6'	64°51.2'
19	126°13.3'	N 15°38.9'	7.7'	-11.9'	59.9'		20°27.1'	36°36.8'	39°34.3'	63°54.6'	61°02.7'	68°03.5'	65°08.1'
20	140°40.0'	N 15°27.1'	7.8'	-12.0'	59.9'		20°59.9'	37°12.9'	40°05.9'	64°29.2'	61°26.8'	68°36.6'	65°25.2'
21	155°06.8'	N 15°15.1'	7.8'	-12.1'	59.9'		21°32.8'	37°49.0'	40°37.6'	65°03.8'	61°51.0'	69°09.6'	65°42.5'
22	169°33.6'	N 15°03.1'	7.8'	-12.2'	60.0'		22°05.7'	38°25.3'	41°09.5'	65°38.5'	62°15.4'	69°42.8'	65°59.8'
23	184°00.4'	N 14°50.9'	7.9'	-12.3'	60.0'		22°38.7'	39°01.5'	41°41.5'	66°13.2'	62°39.9'	70°16.0'	66°17.4'
Mer. pass.		10 h 16 m SD 16.2'	phase 9%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.7'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°19.8'	N 89°20.7'
Rigil Kent	-0.0	139°45.4'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.3'	S 60°28.3'	Canopus	-0.6	263°54.1'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	355°24.0'	181°17.2' N 2°32.8'	222°27.8'	N 16°48.6'	66°27.7' S 22°43.3'	57°53.6' S 21°20.3'	328°01.2' N 6°49.5'					
1	10°26.5'	196°17.5' N 2°31.8'	237°27.4'	N 16°48.0'	81°30.1' S 22°43.3'	72°56.1' S 21°20.3'	343°03.9' N 6°49.5'					
2	25°28.9'	211°17.7' N 2°30.8'	252°27.0'	N 16°47.5'	96°32.5' S 22°43.3'	87°58.7' S 21°20.3'	358°06.6' N 6°49.4'					
3	40°31.4'	226°17.9' N 2°29.9'	267°26.6'	N 16°46.9'	111°35.0' S 22°43.3'	103°01.2' S 21°20.3'	13°09.3' N 6°49.4'					
4	55°33.9'	241°18.1' N 2°28.9'	282°26.2'	N 16°46.3'	126°37.4' S 22°43.3'	118°03.7' S 21°20.3'	28°12.0' N 6°49.3'					
5	70°36.3'	256°18.3' N 2°27.9'	297°25.8'	N 16°45.7'	141°39.8' S 22°43.3'	133°06.2' S 21°20.3'	43°14.7' N 6°49.3'					
6	85°38.8'	271°18.6' N 2°27.0'	312°25.4'	N 16°45.1'	156°42.3' S 22°43.3'	148°08.7' S 21°20.3'	58°17.4' N 6°49.2'					
7	100°41.3'	286°18.8' N 2°26.0'	327°25.0'	N 16°44.5'	171°44.7' S 22°43.3'	163°11.3' S 21°20.3'	73°20.1' N 6°49.2'					
8	115°43.7'	301°19.0' N 2°25.0'	342°24.6'	N 16°44.0'	186°47.1' S 22°43.3'	178°13.8' S 21°20.4'	88°22.8' N 6°49.2'					
9	130°46.2'	316°19.2' N 2°24.1'	357°24.2'	N 16°43.4'	201°49.6' S 22°43.3'	193°16.3' S 21°20.4'	103°25.5' N 6°49.1'					
10	145°48.7'	331°19.5' N 2°23.1'	12°23.7' N 16°42.8'	216°52.0' S 22°43.3'	208°18.8' S 21°20.4'	118°28.2' N 6°49.1'						
11	160°51.1'	346°19.7' N 2°22.1'	27°23.3' N 16°42.2'	231°54.4' S 22°43.3'	223°21.3' S 21°20.4'	133°30.9' N 6°49.0'						
12	175°53.6'	1°19.9' N 2°21.2'	42°22.9' N 16°41.6'	246°56.9' S 22°43.3'	238°23.8' S 21°20.4'	148°33.6' N 6°49.0'						
13	190°56.0'	16°20.1' N 2°20.2'	57°22.5' N 16°41.0'	261°59.3' S 22°43.3'	253°26.4' S 21°20.4'	163°36.3' N 6°48.9'						
14	205°58.5'	31°20.3' N 2°19.2'	72°22.1' N 16°40.4'	277°01.7' S 22°43.3'	268°28.9' S 21°20.4'	178°39.0' N 6°48.9'						
15	221°01.0'	46°20.6' N 2°18.3'	87°21.7' N 16°39.8'	292°04.2' S 22°43.3'	283°31.4' S 21°20.4'	193°41.7' N 6°48.9'						
16	236°03.4'	61°20.8' N 2°17.3'	102°21.3' N 16°39.2'	307°06.6' S 22°43.3'	298°33.9' S 21°20.5'	208°44.4' N 6°48.8'						
17	251°05.9'	76°21.0' N 2°16.3'	117°20.9' N 16°38.6'	322°09.0' S 22°43.3'	313°36.4' S 21°20.5'	223°47.2' N 6°48.8'						
18	266°08.4'	91°21.2' N 2°15.4'	132°20.5' N 16°38.0'	337°11.5' S 22°43.3'	328°39.0' S 21°20.5'	238°49.9' N 6°48.7'						
19	281°10.8'	106°21.5' N 2°14.4'	147°20.1' N 16°37.4'	352°13.9' S 22°43.3'	343°41.5' S 21°20.5'	253°52.6' N 6°48.7'						
20	296°13.3'	121°21.7' N 2°13.4'	162°19.7' N 16°36.8'	7°16.3' S 22°43.3'	358°44.0' S 21°20.5'	268°55.3' N 6°48.6'						
21	311°15.8'	136°21.9' N 2°12.5'	177°19.3' N 16°36.2'	22°18.8' S 22°43.3'	13°46.5' S 21°20.5'	283°58.0' N 6°48.6'						
22	326°18.2'	151°22.1' N 2°11.5'	192°18.9' N 16°35.6'	37°21.2' S 22°43.2'	28°49.0' S 21°20.5'	299°00.7' N 6°48.5'						
23	341°20.7'	166°22.4' N 2°10.5'	207°18.5' N 16°35.0'	52°23.6' S 22°43.2'	43°51.5' S 21°20.5'	314°03.5' N 6°48.5'						
		SD 15.9' d -1.0'	v -0.4' d -0.6'	v 2.4' d 0.0'	v 2.5' d -0.0'	v 2.7' d -0.0'						
Mer. pass.		11 h 54 m 41 s	9 h 10 m	19 h 31 m	20 h 5 m	2 h 8 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Regulus	+Venus	+Pollux	+Procyon	+Sirius	+Adhara	+Betelgeuse	+Capella
0	198°27.3'	N 14°38.6'	7.9'	-12.4'	60.0'								
1	212°54.2'	N 14°26.2'	7.9'	-12.5'	60.1'								
2	227°21.1'	N 14°13.7'	8.0'	-12.6'	60.1'								
3	241°48.1'	N 14°01.1'	8.0'	-12.7'	60.1'								
4	256°15.1'	N 13°48.5'	8.0'	-12.8'	60.1'								
5	270°42.1'	N 13°35.7'	8.0'	-12.9'	60.2'								
6	285°09.1'	N 13°22.8'	8.1'	-13.0'	60.2'	8°04.9'	26°31.6'	43°16.5'	45°29.0'	65°35.0'	68°24.2'	70°17.8'	74°10.0'
7	299°36.2'	N 13°09.8'	8.1'	-13.1'	60.2'	8°36.9'	27°05.1'	43°53.1'	46°02.0'	66°00.5'	68°42.9'	70°53.0'	74°43.6'
8	314°03.3'	N 12°56.8'	8.1'	-13.2'	60.2'	9°09.6'	27°38.7'	44°29.7'	46°35.0'	66°26.1'	69°01.7'	71°28.1'	75°17.3'
9	328°30.4'	N 12°43.6'	8.2'	-13.2'	60.3'	9°42.8'	28°12.3'	45°06.4'	47°08.2'	66°51.8'	69°20.6'	72°03.3'	75°51.1'
10	342°57.6'	N 12°30.3'	8.2'	-13.3'	60.3'	10°16.5'	28°45.9'	45°43.1'	47°41.5'	67°17.6'	69°39.6'	72°38.6'	76°24.9'
11	357°24.8'	N 12°17.0'	8.2'	-13.4'	60.3'	10°50.5'	29°19.6'	46°19.8'	48°14.9'	67°43.6'	69°58.8'	73°13.9'	76°58.7'
12	11°52.0'	N 12°03.6'	8.3'	-13.5'	60.4'	11°24.9'	29°53.3'	46°56.6'	48°48.3'	68°09.6'	70°18.1'	73°49.3'	77°32.6'
13	26°19.3'	N 11°50.1'	8.3'	-13.6'	60.4'	11°59.5'	30°27.1'	47°33.4'	49°21.9'	68°35.8'	70°37.5'	74°24.6'	78°06.5'
14	40°46.6'	N 11°36.5'	8.3'	-13.7'	60.4'	12°34.4'	31°01.0'	48°10.3'	49°55.5'	69°02.0'	70°57.1'	75°00.1'	78°40.5'
15	55°13.9'	N 11°22.8'	8.3'	-13.8'	60.4'	13°09.5'	31°34.8'	48°47.2'	50°29.2'	69°28.4'	71°16.7'	75°35.5'	79°14.5'
16	69°41.2'	N 11°09.0'	8.4'	-13.8'	60.4'	13°44.8'	32°08.8'	49°24.1'	51°03.1'	69°54.8'	71°36.5'	76°11.0'	79°48.5'
17	84°08.6'	N 10°55.2'	8.4'	-13.9'	60.5'	14°20.3'	32°42.7'	50°01.0'	51°37.0'	70°21.4'	71°56.4'	76°46.6'	80°22.6'
18	98°36.0'	N 10°41.3'	8.4'	-14.0'	60.5'	14°56.0'	33°16.7'	50°38.0'	52°10.9'	70°48.0'	72°16.3'	77°22.1'	80°56.7'
19	113°03.4'	N 10°27.3'	8.4'	-14.1'	60.5'	15°31.7'	33°50.7'	51°15.0'	52°45.0'	71°14.7'	72°36.4'	77°57.7'	81°30.9'
20	127°30.8'	N 10°13.2'	8.5'	-14.1'	60.5'	16°07.7'	34°24.8'	51°52.1'	53°19.1'	71°41.5'	72°56.6'	78°33.4'	82°05.0'
21	141°58.3'	N 9°59.1'	8.5'	-14.2'	60.6'								
22	156°25.8'	N 9°44.9'	8.5'	-14.3'	60.6'								
23	170°53.3'	N 9°30.6'	8.6'	-14.3'	60.6'								
Mer. pass.		11 h 11 m SD 16.4'	phase 3%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.7'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.7'	N 5°10.4'	Polaris	+2.0	315°19.5'	N 89°20.7'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	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°23.1'	181°22.6'	N 2°09.6'	222°18.1'	N 16°34.4'		67°26.1'	S 22°43.2'		58°54.1'	S 21°20.5'		329°06.2'	N 6°48.4'				
1	11°25.6'	196°22.8'	N 2°08.6'	237°17.7'	N 16°33.8'		82°28.5'	S 22°43.2'		73°56.6'	S 21°20.6'		344°08.9'	N 6°48.4'				
2	26°28.1'	211°23.0'	N 2°07.6'	252°17.3'	N 16°33.2'		97°30.9'	S 22°43.2'		88°59.1'	S 21°20.6'		359°11.6'	N 6°48.3'				
3	41°30.5'	226°23.2'	N 2°06.7'	267°16.9'	N 16°32.6'		112°33.3'	S 22°43.2'		104°01.6'	S 21°20.6'		14°14.4'	N 6°48.3'				
4	56°33.0'	241°23.5'	N 2°05.7'	282°16.5'	N 16°32.0'		127°35.8'	S 22°43.2'		119°04.1'	S 21°20.6'		29°17.1'	N 6°48.2'				
5	71°35.5'	256°23.7'	N 2°04.7'	297°16.1'	N 16°31.4'		142°38.2'	S 22°43.2'		134°06.6'	S 21°20.6'		44°19.8'	N 6°48.2'				
6	86°37.9'	271°23.9'	N 2°03.8'	312°15.6'	N 16°30.8'		157°40.6'	S 22°43.2'		149°09.1'	S 21°20.6'		59°22.6'	N 6°48.1'				
7	101°40.4'	286°24.1'	N 2°02.8'	327°15.2'	N 16°30.2'		172°43.1'	S 22°43.2'		164°11.7'	S 21°20.6'		74°25.3'	N 6°48.1'				
8	116°42.9'	301°24.4'	N 2°01.8'	342°14.8'	N 16°29.6'		187°45.5'	S 22°43.2'		179°14.2'	S 21°20.6'		89°28.0'	N 6°48.0'				
9	131°45.3'	316°24.6'	N 2°00.9'	357°14.4'	N 16°29.0'		202°47.9'	S 22°43.2'		194°16.7'	S 21°20.6'		104°30.8'	N 6°48.0'				
10	146°47.8'	331°24.8'	N 1°59.9'	12°14.0'	N 16°28.4'		217°50.3'	S 22°43.2'		209°19.2'	S 21°20.7'		119°33.5'	N 6°47.9'				
11	161°50.3'	346°25.0'	N 1°58.9'	27°13.6'	N 16°27.8'		232°52.8'	S 22°43.2'		224°21.7'	S 21°20.7'		134°36.3'	N 6°47.9'				
12	176°52.7'	1°25.2'	N 1°58.0'	42°13.2'	N 16°27.2'		247°55.2'	S 22°43.2'		239°24.2'	S 21°20.7'		149°39.0'	N 6°47.8'				
13	191°55.2'	16°25.5'	N 1°57.0'	57°12.8'	N 16°26.5'		262°57.6'	S 22°43.2'		254°26.7'	S 21°20.7'		164°41.7'	N 6°47.8'				
14	206°57.6'	31°25.7'	N 1°56.0'	72°12.4'	N 16°25.9'		278°00.0'	S 22°43.2'		269°29.3'	S 21°20.7'		179°44.5'	N 6°47.7'				
15	222°00.1'	46°25.9'	N 1°55.1'	87°12.0'	N 16°25.3'		293°02.5'	S 22°43.2'		284°31.8'	S 21°20.7'		194°47.2'	N 6°47.6'				
16	237°02.6'	61°26.1'	N 1°54.1'	102°11.6'	N 16°24.7'		308°04.9'	S 22°43.2'		299°34.3'	S 21°20.7'		209°50.0'	N 6°47.6'				
17	252°05.0'	76°26.4'	N 1°53.1'	117°11.2'	N 16°24.1'		323°07.3'	S 22°43.2'		314°36.8'	S 21°20.7'		224°52.7'	N 6°47.5'				
18	267°07.5'	91°26.6'	N 1°52.2'	132°10.8'	N 16°23.5'		338°09.7'	S 22°43.2'		329°39.3'	S 21°20.7'		239°55.5'	N 6°47.5'				
19	282°10.0'	106°26.8'	N 1°51.2'	147°10.4'	N 16°22.9'		353°12.2'	S 22°43.2'		344°41.8'	S 21°20.8'		254°58.2'	N 6°47.4'				
20	297°12.4'	121°27.0'	N 1°50.2'	162°10.0'	N 16°22.2'		8°14.6'	S 22°43.2'		359°44.3'	S 21°20.8'		270°01.0'	N 6°47.4'				
21	312°14.9'	136°27.2'	N 1°49.3'	177°09.6'	N 16°21.6'		23°17.0'	S 22°43.2'		14°46.9'	S 21°20.8'		285°03.8'	N 6°47.3'				
22	327°17.4'	151°27.5'	N 1°48.3'	192°09.2'	N 16°21.0'		38°19.4'	S 22°43.2'		29°49.4'	S 21°20.8'		300°06.5'	N 6°47.3'				
23	342°19.8'	166°27.7'	N 1°47.3'	207°08.8'	N 16°20.4'		53°21.8'	S 22°43.2'		44°51.9'	S 21°20.8'		315°09.3'	N 6°47.2'				
		SD 15.9'	d -1.0'		v -0.4'	d -0.6'		v 2.4'	d 0.0'		v 2.5'	d -0.0'		v 2.7'	d -0.1'			
Mer. pass.		11 h 54 m 20 s		9 h 11 m			19 h 27 m			20 h 1 m			2 h 3 m					

h	Moon				
	GHA	dec	v	d	HP
0	185°20.9'	N 9°16.2'	8.6'	-14.4'	60.6'
1	199°48.5'	N 9°01.8'	8.6'	-14.5'	60.6'
2	214°16.1'	N 8°47.4'	8.6'	-14.5'	60.7'
3	228°43.7'	N 8°32.8'	8.6'	-14.6'	60.7'
4	243°11.3'	N 8°18.2'	8.7'	-14.7'	60.7'
5	257°39.0'	N 8°03.5'	8.7'	-14.7'	60.7'
6	272°06.7'	N 7°48.8'	8.7'	-14.8'	60.7'
7	286°34.4'	N 7°34.0'	8.7'	-14.8'	60.7'
8	301°02.1'	N 7°19.2'	8.8'	-14.9'	60.8'
9	315°29.9'	N 7°04.3'	8.8'	-14.9'	60.8'
10	329°57.7'	N 6°49.4'	8.8'	-15.0'	60.8'
11	344°25.5'	N 6°34.4'	8.8'	-15.0'	60.8'
12	358°53.3'	N 6°19.4'	8.8'	-15.1'	60.8'
13	13°21.1'	N 6°04.3'	8.8'	-15.1'	60.8'
14	27°49.0'	N 5°49.2'	8.9'	-15.2'	60.8'
15	42°16.8'	N 5°34.0'	8.9'	-15.2'	60.9'
16	56°44.7'	N 5°18.8'	8.9'	-15.2'	60.9'
17	71°12.6'	N 5°03.6'	8.9'	-15.3'	60.9'
18	85°40.5'	N 4°48.3'	8.9'	-15.3'	60.9'
19	100°08.4'	N 4°33.0'	8.9'	-15.3'	60.9'
20	114°36.4'	N 4°17.7'	9.0'	-15.4'	60.9'
21	129°04.3'	N 4°02.3'	9.0'	-15.4'	60.9'
22	143°32.3'	N 3°46.9'	9.0'	-15.4'	60.9'
23	158°00.3'	N 3°31.5'	9.0'	-15.5'	60.9'
Mer. pass.	12 h 5 m SD 16.5'	phase 1%			

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.7'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°19.1'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'				

Friday 18 September 2020 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	357°22.3'	181°27.9'	N 1°46.4'	222°08.4'	N 16°19.8'	68°24.3'	S 22°43.2'	59°54.4'	S 21°20.8'	330°12.0'	N 6°47.1'							
1	12°24.7'	196°28.1'	N 1°45.4'	237°07.9'	N 16°19.1'	83°26.7'	S 22°43.2'	74°56.9'	S 21°20.8'	345°14.8'	N 6°47.1'							
2	27°27.2'	211°28.4'	N 1°44.4'	252°07.5'	N 16°18.5'	98°29.1'	S 22°43.2'	89°59.4'	S 21°20.8'	0°17.5'	N 6°47.0'							
3	42°29.7'	226°28.6'	N 1°43.5'	267°07.1'	N 16°17.9'	113°31.5'	S 22°43.2'	105°01.9'	S 21°20.8'	15°20.3'	N 6°47.0'							
4	57°32.1'	241°28.8'	N 1°42.5'	282°06.7'	N 16°17.3'	128°33.9'	S 22°43.2'	120°04.4'	S 21°20.9'	30°23.1'	N 6°46.9'							
5	72°34.6'	256°29.0'	N 1°41.5'	297°06.3'	N 16°16.6'	143°36.4'	S 22°43.2'	135°07.0'	S 21°20.9'	45°25.8'	N 6°46.8'							
6	87°37.1'	271°29.2'	N 1°40.5'	312°05.9'	N 16°16.0'	158°38.8'	S 22°43.2'	150°09.5'	S 21°20.9'	60°28.6'	N 6°46.8'							
7	102°39.5'	286°29.5'	N 1°39.6'	327°05.5'	N 16°15.4'	173°41.2'	S 22°43.2'	165°12.0'	S 21°20.9'	75°31.4'	N 6°46.7'							
8	117°42.0'	301°29.7'	N 1°38.6'	342°05.1'	N 16°14.8'	188°43.6'	S 22°43.1'	180°14.5'	S 21°20.9'	90°34.2'	N 6°46.7'							
9	132°44.5'	316°29.9'	N 1°37.6'	357°04.7'	N 16°14.1'	203°46.0'	S 22°43.1'	195°17.0'	S 21°20.9'	105°36.9'	N 6°46.6'							
10	147°46.9'	331°30.1'	N 1°36.7'	12°04.3'	N 16°13.5'	218°48.5'	S 22°43.1'	210°19.5'	S 21°20.9'	120°39.7'	N 6°46.5'							
11	162°49.4'	346°30.4'	N 1°35.7'	27°03.9'	N 16°12.9'	233°50.9'	S 22°43.1'	225°22.0'	S 21°20.9'	135°42.5'	N 6°46.5'							
12	177°51.9'	1°30.6'	N 1°34.7'	42°03.5'	N 16°12.2'	248°53.3'	S 22°43.1'	240°24.5'	S 21°20.9'	150°45.3'	N 6°46.4'							
13	192°54.3'	16°30.8'	N 1°33.8'	57°03.1'	N 16°11.6'	263°55.7'	S 22°43.1'	255°27.0'	S 21°20.9'	165°48.0'	N 6°46.4'							
14	207°56.8'	31°31.0'	N 1°32.8'	72°02.7'	N 16°11.0'	278°58.1'	S 22°43.1'	270°29.5'	S 21°21.0'	180°50.8'	N 6°46.3'							
15	222°59.2'	46°31.2'	N 1°31.8'	87°02.3'	N 16°10.3'	294°00.5'	S 22°43.1'	285°32.1'	S 21°21.0'	195°53.6'	N 6°46.2'							
16	238°01.7'	61°31.5'	N 1°30.9'	102°01.9'	N 16°09.7'	309°02.9'	S 22°43.1'	300°34.6'	S 21°21.0'	210°56.4'	N 6°46.2'							
17	253°04.2'	76°31.7'	N 1°29.9'	117°01.5'	N 16°09.1'	324°05.4'	S 22°43.1'	315°37.1'	S 21°21.0'	225°59.2'	N 6°46.1'							
18	268°06.6'	91°31.9'	N 1°28.9'	132°01.1'	N 16°08.4'	339°07.8'	S 22°43.1'	330°39.6'	S 21°21.0'	241°01.9'	N 6°46.0'							
19	283°09.1'	106°32.1'	N 1°27.9'	147°00.7'	N 16°07.8'	354°10.2'	S 22°43.1'	345°42.1'	S 21°21.0'	256°04.7'	N 6°46.0'							
20	298°11.6'	121°32.4'	N 1°27.0'	162°00.3'	N 16°07.2'	9°12.6'	S 22°43.1'	0°44.6'	S 21°21.0'	271°07.5'	N 6°45.9'							
21	313°14.0'	136°32.6'	N 1°26.0'	176°59.9'	N 16°06.5'	24°15.0'	S 22°43.1'	15°47.1'	S 21°21.0'	286°10.3'	N 6°45.8'							
22	328°16.5'	151°32.8'	N 1°25.0'	191°59.5'	N 16°05.9'	39°17.4'	S 22°43.1'	30°49.6'	S 21°21.0'	301°13.1'	N 6°45.8'							
23	343°19.0'	166°33.0'	N 1°24.1'	206°59.0'	N 16°05.3'	54°19.8'	S 22°43.1'	45°52.1'	S 21°21.0'	316°15.9'	N 6°45.7'							
		SD 15.9' d -1.0'		v -0.4' d -0.6'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 2.8' d -0.1'								
Mer. pass.		11 h 53 m 58 s		9 h 12 m		19 h 23 m		19 h 57 m		1 h 59 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Saturn	-Altair	-Jupiter	-Vega	-Hadar	-Acrux	-Arcturus	-Spica
0	172°28.3'	N 3°16.0'	9.0'	-15.5'	60.9'								
1	186°56.3'	N 3°00.5'	9.0'	-15.5'	60.9'								
2	201°24.3'	N 2°45.0'	9.0'	-15.5'	61.0'	110°55.5'	111°08.1'	102°58.5'	90°53.4'	66°12.4'	65°57.9'	31°57.5'	20°50.8'
3	215°52.3'	N 2°29.5'	9.0'	-15.5'	61.0'	110°17.7'	110°37.1'	102°20.8'	90°36.4'	65°49.4'	65°42.2'	31°37.2'	20°15.0'
4	230°20.3'	N 2°14.0'	9.0'	-15.6'	61.0'	109°40.0'	110°06.1'	101°43.1'	90°19.4'	65°26.6'	65°26.7'	31°17.4'	19°39.3'
5	244°48.4'	N 1°58.4'	9.0'	-15.6'	61.0'	109°02.2'	109°35.0'	101°05.4'	90°02.3'	65°03.9'	65°11.3'	30°58.0'	19°03.7'
6	259°16.4'	N 1°42.8'	9.0'	-15.6'	61.0'	108°24.4'	109°03.9'	100°27.7'	89°45.3'	64°41.3'	64°56.1'	30°39.2'	18°28.3'
7	273°44.5'	N 1°27.3'	9.1'	-15.6'	61.0'	107°46.6'	108°32.7'	99°50.0'	89°28.2'	64°18.8'		30°20.9'	17°53.0'
8	288°12.5'	N 1°11.7'	9.1'	-15.6'	61.0'	107°08.8'	108°01.5'	99°12.3'	89°11.2'	63°56.4'		30°03.2'	17°17.9'
9	302°40.6'	N 0°56.1'	9.1'	-15.6'	61.0'	106°31.1'	107°30.2'	98°34.6'	88°54.2'	63°34.2'		29°46.0'	16°43.0'
10	317°08.6'	N 0°40.5'	9.1'	-15.6'	61.0'	105°53.3'	106°58.9'	97°56.9'	88°37.1'	63°12.1'		29°29.4'	16°08.3'
11	331°36.7'	N 0°24.9'	9.1'	-15.6'	61.0'	105°15.5'	106°27.5'	97°19.1'	88°20.1'	62°50.2'		29°13.4'	15°33.8'
12	346°04.7'	N 0°09.2'	9.1'	-15.6'	61.0'	104°37.7'	105°56.1'	96°41.4'	88°03.1'	62°28.4'			14°59.6'
13	0°32.8'	S 0°06.4'	9.1'	-15.6'	61.0'	103°59.9'	105°24.7'	96°03.7'	87°46.1'	62°06.7'			14°25.6'
14	15°00.9'	S 0°22.0'	9.1'	-15.6'	61.0'	103°22.1'	104°53.3'	95°26.0'	87°29.1'	61°45.2'			13°52.0'
15	29°28.9'	S 0°37.6'	9.1'	-15.6'	61.0'	102°44.3'	104°21.8'	94°48.3'	87°12.1'	61°23.8'			13°18.7'
16	43°57.0'	S 0°53.2'	9.1'	-15.6'	61.0'	102°06.5'	103°50.2'	94°10.5'	86°55.2'	61°02.6'			12°45.9'
17	58°25.1'	S 1°08.8'	9.1'	-15.6'	61.0'	101°28.8'	103°18.7'	93°32.8'	86°38.2'	60°41.6'			12°13.5'
18	72°53.1'	S 1°24.4'	9.1'	-15.6'	61.0'	100°51.0'	102°47.1'	92°55.1'	86°21.3'	60°20.7'			11°41.7'
19	87°21.2'	S 1°40.0'	9.0'	-15.6'	61.0'	100°13.2'	102°15.5'	92°17.4'	86°04.4'	59°60.0'			11°10.4'
20	101°49.2'	S 1°55.6'	9.0'	-15.6'	61.0'	99°35.4'	101°43.8'	91°39.7'	85°47.6'	59°39.4'			
21	116°17.3'	S 2°11.1'	9.0'	-15.5'	61.0'	98°57.7'	101°12.2'	91°02.0'	85°30.7'	59°19.1'			
22	130°45.3'	S 2°26.7'	9.0'	-15.5'	61.0'	98°19.9'	100°40.5'	90°24.3'	85°13.9'	58°58.9'			
23	145°13.3'	S 2°42.2'	9.0'	-15.5'	61.0'	97°42.2'	100°08.8'	89°46.7'	84°57.2'	58°38.9'			
Mer. pass.		12 h 58 m SD 16.6'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°18.8'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	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°23.4'	181°33.2'	N 1°23.1'	221°58.6'	N 16°04.6'	69°22.3'	S 22°43.1'	60°54.6'	S 21°21.1'	331°18.7'	N 6°45.6'			
1	13°21.9'	196°33.5'	N 1°22.1'	236°58.2'	N 16°04.0'	84°24.7'	S 22°43.1'	75°57.1'	S 21°21.1'	346°21.5'	N 6°45.6'			
2	28°26.4'	211°33.7'	N 1°21.2'	251°57.8'	N 16°03.3'	99°27.1'	S 22°43.1'	90°59.6'	S 21°21.1'	1°24.3'	N 6°45.5'			
3	43°28.8'	226°33.9'	N 1°20.2'	266°57.4'	N 16°02.7'	114°29.5'	S 22°43.1'	106°02.2'	S 21°21.1'	16°27.1'	N 6°45.4'			
4	58°31.3'	241°34.1'	N 1°19.2'	281°57.0'	N 16°02.0'	129°31.9'	S 22°43.1'	121°04.7'	S 21°21.1'	31°29.9'	N 6°45.4'			
5	73°33.7'	256°34.4'	N 1°18.2'	296°56.6'	N 16°01.4'	144°34.3'	S 22°43.1'	136°07.2'	S 21°21.1'	46°32.7'	N 6°45.3'			
6	88°36.2'	271°34.6'	N 1°17.3'	311°56.2'	N 16°00.8'	159°36.7'	S 22°43.1'	151°09.7'	S 21°21.1'	61°35.5'	N 6°45.2'			
7	103°38.7'	286°34.8'	N 1°16.3'	326°55.8'	N 16°00.1'	174°39.1'	S 22°43.0'	166°12.2'	S 21°21.1'	76°38.3'	N 6°45.2'			
8	118°41.1'	301°35.0'	N 1°15.3'	341°55.4'	N 15°59.5'	189°41.5'	S 22°43.0'	181°14.7'	S 21°21.1'	91°41.1'	N 6°45.1'			
9	133°43.6'	316°35.2'	N 1°14.4'	356°55.0'	N 15°58.8'	204°43.9'	S 22°43.0'	196°17.2'	S 21°21.1'	106°43.9'	N 6°45.0'			
10	148°46.1'	331°35.5'	N 1°13.4'	11°54.6'	N 15°58.2'	219°46.4'	S 22°43.0'	211°19.7'	S 21°21.2'	121°46.7'	N 6°45.0'			
11	163°48.5'	346°35.7'	N 1°12.4'	26°54.2'	N 15°57.5'	234°48.8'	S 22°43.0'	226°22.2'	S 21°21.2'	136°49.5'	N 6°44.9'			
12	178°51.0'	1°35.9'	N 1°11.5'	41°53.8'	N 15°56.9'	249°51.2'	S 22°43.0'	241°24.7'	S 21°21.2'	151°52.3'	N 6°44.8'			
13	193°53.5'	16°36.1'	N 1°10.5'	56°53.4'	N 15°56.2'	264°53.6'	S 22°43.0'	256°27.2'	S 21°21.2'	166°55.1'	N 6°44.7'			
14	208°55.9'	31°36.3'	N 1°09.5'	71°53.0'	N 15°55.6'	279°56.0'	S 22°43.0'	271°29.7'	S 21°21.2'	181°58.0'	N 6°44.7'			
15	223°58.4'	46°36.6'	N 1°08.5'	86°52.6'	N 15°54.9'	294°58.4'	S 22°43.0'	286°32.2'	S 21°21.2'	197°00.8'	N 6°44.6'			
16	239°00.8'	61°36.8'	N 1°07.6'	101°52.2'	N 15°54.3'	310°00.8'	S 22°43.0'	301°34.7'	S 21°21.2'	212°03.6'	N 6°44.5'			
17	254°03.3'	76°37.0'	N 1°06.6'	116°51.8'	N 15°53.6'	325°03.2'	S 22°43.0'	316°37.2'	S 21°21.2'	227°06.4'	N 6°44.5'			
18	269°05.8'	91°37.2'	N 1°05.6'	131°51.4'	N 15°52.9'	340°05.6'	S 22°43.0'	331°39.7'	S 21°21.2'	242°09.2'	N 6°44.4'			
19	284°08.2'	106°37.5'	N 1°04.7'	146°51.0'	N 15°52.3'	355°08.0'	S 22°43.0'	346°42.2'	S 21°21.2'	257°12.1'	N 6°44.3'			
20	299°10.7'	121°37.7'	N 1°03.7'	161°50.6'	N 15°51.6'	10°10.4'	S 22°43.0'	1°44.8'	S 21°21.2'	272°14.9'	N 6°44.2'			
21	314°13.2'	136°37.9'	N 1°02.7'	176°50.2'	N 15°51.0'	25°12.8'	S 22°43.0'	16°47.3'	S 21°21.3'	287°17.7'	N 6°44.2'			
22	329°15.6'	151°38.1'	N 1°01.7'	191°49.8'	N 15°50.3'	40°15.2'	S 22°43.0'	31°49.8'	S 21°21.3'	302°20.5'	N 6°44.1'			
23	344°18.1'	166°38.3'	N 1°00.8'	206°49.4'	N 15°49.7'	55°17.6'	S 22°43.0'	46°52.3'	S 21°21.3'	317°23.3'	N 6°44.0'			
		SD 15.9' d -1.0'		v -0.4' d -0.7'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 2.8' d -0.1'				
Mer. pass.		11 h 53 m 37 s		9 h 12 m		19 h 19 m		19 h 53 m		1 h 54 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Altair	-Saturn	-Jupiter	-Rigel Kent	-Hadar	-Antares	-Spica
0	159°41.4'	S 2°57.7'	9.0'	-15.5'	61.0'		99°37.1'	97°04.4'	89°09.0'	60°13.8'	58°19.0'	52°26.5'	
1	174°09.4'	S 3°13.2'	9.0'	-15.5'	61.0'		99°05.4'	96°26.7'	88°31.3'	59°51.6'	57°59.4'	51°49.1'	
2	188°37.4'	S 3°28.7'	9.0'	-15.4'	61.0'		98°33.7'	95°49.0'	87°53.7'	59°29.6'	57°39.9'	51°11.7'	
3	203°05.4'	S 3°44.1'	9.0'	-15.4'	60.9'		98°02.0'	95°11.2'	87°16.0'	59°07.7'	57°20.7'	50°34.3'	
4	217°33.4'	S 3°59.5'	9.0'	-15.4'	60.9'		97°30.2'	94°33.5'	86°38.4'	58°46.1'	57°01.6'	49°57.0'	
5	232°01.3'	S 4°14.9'	9.0'	-15.4'	60.9'		96°58.5'	93°55.8'	86°00.8'	58°24.6'	56°42.8'	49°19.6'	
6	246°29.3'	S 4°30.3'	9.0'	-15.3'	60.9'		96°26.7'	93°18.2'	85°23.2'	58°03.3'	56°24.2'	48°42.3'	
7	260°57.3'	S 4°45.6'	8.9'	-15.3'	60.9'		95°55.0'	92°40.5'	84°45.6'	57°42.1'	56°05.8'	48°05.0'	
8	275°25.2'	S 5°00.9'	8.9'	-15.3'	60.9'		95°23.2'	92°02.8'	84°08.0'	57°21.2'	55°47.6'	47°27.7'	
9	289°53.1'	S 5°16.1'	8.9'	-15.2'	60.9'		94°51.4'	91°25.2'	83°30.4'	57°00.4'	55°29.6'	46°50.4'	
10	304°21.0'	S 5°31.3'	8.9'	-15.2'	60.9'		94°19.7'	90°47.6'	82°52.9'	56°39.9'	55°11.8'	46°13.1'	
11	318°48.9'	S 5°46.5'	8.9'	-15.1'	60.9'	117°05.6'	93°47.9'	90°09.9'	82°15.3'	56°19.5'	54°54.3'	45°35.9'	
12	333°16.8'	S 6°01.7'	8.9'	-15.1'	60.9'	116°50.2'	93°16.2'	89°32.3'	81°37.8'	55°59.3'	54°37.0'	44°58.7'	
13	347°44.7'	S 6°16.8'	8.8'	-15.1'	60.9'	116°34.7'	92°44.4'	88°54.8'	81°00.3'	55°39.4'	54°20.0'	44°21.5'	
14	2°12.5'	S 6°31.8'	8.8'	-15.0'	60.8'	116°19.0'	92°12.7'	88°17.2'	80°22.8'	55°19.6'	54°03.2'	43°44.4'	
15	16°40.3'	S 6°46.8'	8.8'	-15.0'	60.8'	116°03.1'	91°41.0'	87°39.7'	79°45.4'	55°00.1'	53°46.6'	43°07.2'	
16	31°08.1'	S 7°01.8'	8.8'	-14.9'	60.8'	115°47.1'	91°09.3'	87°02.1'	79°07.9'	54°40.8'	53°30.3'	42°30.1'	
17	45°35.9'	S 7°16.7'	8.8'	-14.9'	60.8'	115°30.9'	90°37.6'	86°24.6'	78°30.5'	54°21.7'	53°14.2'	41°53.0'	
18	60°03.7'	S 7°31.5'	8.7'	-14.8'	60.8'	115°14.6'	90°05.9'	85°47.1'	77°53.1'	54°02.8'	52°58.4'	41°16.0'	
19	74°31.4'	S 7°46.3'	8.7'	-14.7'	60.8'	114°58.1'	89°34.2'	85°09.7'	77°15.7'	53°44.2'	52°42.9'	40°39.0'	
20	88°59.1'	S 8°01.1'	8.7'	-14.7'	60.8'	114°41.5'	89°02.6'	84°32.2'	76°38.3'	53°25.8'	52°27.6'	40°02.0'	
21	103°26.8'	S 8°15.8'	8.7'	-14.6'	60.7'	114°24.7'	88°31.0'	83°54.8'	76°00.9'	53°07.7'		39°25.0'	
22	117°54.5'	S 8°30.4'	8.7'	-14.6'	60.7'	114°07.8'	87°59.4'	83°17.4'	75°23.6'	52°49.8'		38°48.1'	
23	132°22.2'	S 8°45.0'	8.6'	-14.5'	60.7'	113°50.8'	87°27.8'	82°40.0'	74°46.3'	52°32.1'		38°11.2'	10°31.0'
Mer. pass.		13 h 51 m SD 16.6'		phase 4%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec		
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'		
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'		
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'		
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'		
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°18.4'	N 89°20.8'		
Rigel Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'		
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'						
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'						

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	359°20.6'	181°38.6' N 0°59.8'	221°48.9' N 15°49.0'	70°20.0' S 22°43.0'	61°54.8' S 21°21.3'	332°26.2' N 6°43.9'						
1	14°23.0'	196°38.8' N 0°58.8'	236°48.5' N 15°48.3'	85°22.4' S 22°43.0'	76°57.3' S 21°21.3'	347°29.0' N 6°43.9'						
2	29°25.5'	211°39.0' N 0°57.9'	251°48.1' N 15°47.7'	100°24.8' S 22°42.9'	91°59.8' S 21°21.3'	2°31.8' N 6°43.8'						
3	44°28.0'	226°39.2' N 0°56.9'	266°47.7' N 15°47.0'	115°27.2' S 22°42.9'	107°02.3' S 21°21.3'	17°34.7' N 6°43.7'						
4	59°30.4'	241°39.4' N 0°55.9'	281°47.3' N 15°46.4'	130°29.7' S 22°42.9'	122°04.8' S 21°21.3'	32°37.5' N 6°43.6'						
5	74°32.9'	256°39.7' N 0°55.0'	296°46.9' N 15°45.7'	145°32.1' S 22°42.9'	137°07.3' S 21°21.3'	47°40.3' N 6°43.6'						
6	89°35.3'	271°39.9' N 0°54.0'	311°46.5' N 15°45.0'	160°34.5' S 22°42.9'	152°09.8' S 21°21.3'	62°43.2' N 6°43.5'						
7	104°37.8'	286°40.1' N 0°53.0'	326°46.1' N 15°44.4'	175°36.9' S 22°42.9'	167°12.3' S 21°21.3'	77°46.0' N 6°43.4'						
8	119°40.3'	301°40.3' N 0°52.0'	341°45.7' N 15°43.7'	190°39.3' S 22°42.9'	182°14.8' S 21°21.4'	92°48.9' N 6°43.3'						
9	134°42.7'	316°40.6' N 0°51.1'	356°45.3' N 15°43.0'	205°41.7' S 22°42.9'	197°17.3' S 21°21.4'	107°51.7' N 6°43.3'						
10	149°45.2'	331°40.8' N 0°50.1'	11°44.9' N 15°42.4'	220°44.1' S 22°42.9'	212°19.8' S 21°21.4'	122°54.5' N 6°43.2'						
11	164°47.7'	346°41.0' N 0°49.1'	26°44.5' N 15°41.7'	235°46.5' S 22°42.9'	227°22.3' S 21°21.4'	137°57.4' N 6°43.1'						
12	179°50.1'	1°41.2' N 0°48.1'	41°44.1' N 15°41.0'	250°48.9' S 22°42.9'	242°24.8' S 21°21.4'	153°00.2' N 6°43.0'						
13	194°52.6'	16°41.4' N 0°47.2'	56°43.7' N 15°40.4'	265°51.3' S 22°42.9'	257°27.3' S 21°21.4'	168°03.1' N 6°42.9'						
14	209°55.1'	31°41.7' N 0°46.2'	71°43.3' N 15°39.7'	280°53.7' S 22°42.9'	272°29.8' S 21°21.4'	183°05.9' N 6°42.9'						
15	224°57.5'	46°41.9' N 0°45.2'	86°42.9' N 15°39.0'	295°56.1' S 22°42.9'	287°32.3' S 21°21.4'	198°08.8' N 6°42.8'						
16	239°60.0'	61°42.1' N 0°44.3'	101°42.5' N 15°38.3'	310°58.4' S 22°42.9'	302°34.8' S 21°21.4'	213°11.6' N 6°42.7'						
17	255°02.4'	76°42.3' N 0°43.3'	116°42.1' N 15°37.7'	326°00.8' S 22°42.9'	317°37.3' S 21°21.4'	228°14.5' N 6°42.6'						
18	270°04.9'	91°42.5' N 0°42.3'	131°41.7' N 15°37.0'	341°03.2' S 22°42.9'	332°39.8' S 21°21.4'	243°17.3' N 6°42.5'						
19	285°07.4'	106°42.8' N 0°41.3'	146°41.3' N 15°36.3'	356°05.6' S 22°42.8'	347°42.3' S 21°21.5'	258°20.2' N 6°42.5'						
20	300°09.8'	121°43.0' N 0°40.4'	161°40.9' N 15°35.6'	11°08.0' S 22°42.8'	2°44.8' S 21°21.5'	273°23.0' N 6°42.4'						
21	315°12.3'	136°43.2' N 0°39.4'	176°40.5' N 15°35.0'	26°10.4' S 22°42.8'	17°47.3' S 21°21.5'	288°25.9' N 6°42.3'						
22	330°14.8'	151°43.4' N 0°38.4'	191°40.1' N 15°34.3'	41°12.8' S 22°42.8'	32°49.8' S 21°21.5'	303°28.7' N 6°42.2'						
23	345°17.2'	166°43.7' N 0°37.5'	206°39.7' N 15°33.6'	56°15.2' S 22°42.8'	47°52.3' S 21°21.5'	318°31.6' N 6°42.1'						
		SD 15.9' d -1.0'	v -0.4' d -0.7'	v 2.4' d 0.0'	v 2.5' d -0.0'	v 2.8' d -0.1'						
Mer. pass.		11 h 53 m 16 s	9 h 13 m	19 h 16 m	19 h 49 m	1 h 50 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Vega	-Jupiter	-Rigel Kent	-Antares	+Spica	+Arcturus	+Sun
0	146°49.8'	S 8°59.5'	8.6'	-14.5'	60.7'		78°13.5'	74°09.0'	52°14.7'	37°34.4'	11°01.0'		
1	161°17.4'	S 9°14.0'	8.6'	-14.4'	60.7'	119°25.6'	77°58.2'	73°31.8'	51°57.5'	36°57.6'	11°31.6'		
2	175°45.0'	S 9°28.3'	8.6'	-14.3'	60.7'	118°50.3'	77°43.0'	72°54.5'	51°40.7'	36°20.8'	12°02.9'		
3	190°12.5'	S 9°42.7'	8.5'	-14.3'	60.6'	118°15.0'	77°27.8'	72°17.3'	51°24.0'	35°44.0'	12°34.7'		
4	204°40.0'	S 9°56.9'	8.5'	-14.2'	60.6'	117°39.7'		71°40.1'	51°07.7'	35°07.4'	13°06.9'	29°02.2'	
5	219°07.5'	S 10°11.1'	8.5'	-14.1'	60.6'	117°04.4'		71°03.0'	50°51.6'	34°30.7'	13°39.6'	29°17.5'	
6	233°35.0'	S 10°25.2'	8.4'	-14.0'	60.6'	116°29.1'		70°25.8'	50°35.8'	33°54.1'	14°12.5'	29°33.4'	
7	248°02.4'	S 10°39.2'	8.4'	-14.0'	60.6'	115°53.8'		69°48.7'	50°20.3'	33°17.5'	14°45.8'	29°49.9'	40°06.6'
8	262°29.9'	S 10°53.2'	8.4'	-13.9'	60.5'	115°18.5'		69°11.6'		32°41.0'	15°19.4'	30°06.9'	40°41.0'
9	276°57.2'	S 11°07.1'	8.4'	-13.8'	60.5'	114°43.3'		68°34.6'		32°04.5'	15°53.2'	30°24.5'	41°15.3'
10	291°24.6'	S 11°20.9'	8.3'	-13.7'	60.5'	114°08.0'		67°57.6'		31°28.1'	16°27.2'	30°42.5'	41°49.7'
11	305°51.9'	S 11°34.6'	8.3'	-13.6'	60.5'	113°32.7'		67°20.6'		30°51.8'	17°01.4'	31°01.1'	42°24.0'
12	320°19.2'	S 11°48.3'	8.3'	-13.6'	60.5'	112°57.5'		66°43.6'		30°15.4'	17°35.7'	31°20.1'	42°58.3'
13	334°46.5'	S 12°01.8'	8.2'	-13.5'	60.4'	112°22.2'		66°06.7'		29°39.2'	18°10.2'	31°39.6'	43°32.6'
14	349°13.7'	S 12°15.3'	8.2'	-13.4'	60.4'	111°47.0'		65°29.8'		29°03.0'	18°44.8'	31°59.5'	44°06.9'
15	3°40.9'	S 12°28.7'	8.2'	-13.3'	60.4'	111°11.8'		64°52.9'		28°26.8'	19°19.6'	32°19.9'	44°41.1'
16	18°08.1'	S 12°42.0'	8.1'	-13.2'	60.4'	110°36.6'		64°16.0'		27°50.8'	19°54.4'	32°40.7'	45°15.3'
17	32°35.2'	S 12°55.3'	8.1'	-13.1'	60.4'	110°01.4'		63°39.2'		27°14.8'	20°29.3'	33°01.9'	45°49.5'
18	47°02.3'	S 13°08.4'	8.1'	-13.0'	60.3'	109°26.3'		63°02.4'		26°38.8'	21°04.3'	33°23.5'	46°23.6'
19	61°29.4'	S 13°21.4'	8.0'	-12.9'	60.3'	108°51.1'		62°25.7'		26°02.9'	21°39.4'	33°45.4'	46°57.8'
20	75°56.5'	S 13°34.4'	8.0'	-12.9'	60.3'	108°16.0'		61°48.9'		25°27.1'	22°14.5'	34°07.7'	47°31.9'
21	90°23.5'	S 13°47.2'	8.0'	-12.8'	60.3'	107°40.9'		61°12.3'		24°51.4'	22°49.7'	34°30.4'	48°05.9'
22	104°50.4'	S 13°60.0'	7.9'	-12.7'	60.2'	107°05.8'		60°35.6'		24°15.7'	23°24.9'	34°53.4'	48°40.0'
23	119°17.4'	S 14°12.6'	7.9'	-12.6'	60.2'	106°30.7'		59°59.0'		23°40.2'	24°00.2'	35°16.7'	49°14.0'
Mer. pass.		14 h 45 m SD 16.6'	phase 10%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°18.0'	N 89°20.8'
Rigel Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'				

Monday 21 September 2020 UT1

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	0°19.7'	181°43.9'	N 0°36.5'	221°39.3'	N 15°32.9'	71°17.6'	S 22°42.8'	62°54.8'	S 21°21.5'	333°34.5'	N 6°42.0'
1	15°22.2'	196°44.1'	N 0°35.5'	236°38.9'	N 15°32.2'	86°20.0'	S 22°42.8'	77°57.3'	S 21°21.5'	348°37.3'	N 6°42.0'
2	30°24.6'	211°44.3'	N 0°34.5'	251°38.5'	N 15°31.6'	101°22.4'	S 22°42.8'	92°59.8'	S 21°21.5'	3°40.2'	N 6°41.9'
3	45°27.1'	226°44.5'	N 0°33.6'	266°38.1'	N 15°30.9'	116°24.8'	S 22°42.8'	108°02.3'	S 21°21.5'	18°43.1'	N 6°41.8'
4	60°29.6'	241°44.8'	N 0°32.6'	281°37.7'	N 15°30.2'	131°27.2'	S 22°42.8'	123°04.8'	S 21°21.5'	33°45.9'	N 6°41.7'
5	75°32.0'	256°45.0'	N 0°31.6'	296°37.3'	N 15°29.5'	146°29.6'	S 22°42.8'	138°07.3'	S 21°21.5'	48°48.8'	N 6°41.6'
6	90°34.5'	271°45.2'	N 0°30.7'	311°36.9'	N 15°28.8'	161°32.0'	S 22°42.8'	153°09.8'	S 21°21.5'	63°51.7'	N 6°41.5'
7	105°36.9'	286°45.4'	N 0°29.7'	326°36.5'	N 15°28.2'	176°34.4'	S 22°42.8'	168°12.3'	S 21°21.6'	78°54.5'	N 6°41.5'
8	120°39.4'	301°45.6'	N 0°28.7'	341°36.1'	N 15°27.5'	191°36.8'	S 22°42.8'	183°14.8'	S 21°21.6'	93°57.4'	N 6°41.4'
9	135°41.9'	316°45.9'	N 0°27.7'	356°35.7'	N 15°26.8'	206°39.2'	S 22°42.8'	198°17.3'	S 21°21.6'	109°00.3'	N 6°41.3'
10	150°44.3'	331°46.1'	N 0°26.8'	11°35.3'	N 15°26.1'	221°41.5'	S 22°42.7'	213°19.8'	S 21°21.6'	124°03.2'	N 6°41.2'
11	165°46.8'	346°46.3'	N 0°25.8'	26°34.9'	N 15°25.4'	236°43.9'	S 22°42.7'	228°22.3'	S 21°21.6'	139°06.0'	N 6°41.1'
12	180°49.3'	1°46.5'	N 0°24.8'	41°34.5'	N 15°24.7'	251°46.3'	S 22°42.7'	243°24.8'	S 21°21.6'	154°08.9'	N 6°41.0'
13	195°51.7'	16°46.7'	N 0°23.8'	56°34.1'	N 15°24.0'	266°48.7'	S 22°42.7'	258°27.3'	S 21°21.6'	169°11.8'	N 6°40.9'
14	210°54.2'	31°47.0'	N 0°22.9'	71°33.7'	N 15°23.3'	281°51.1'	S 22°42.7'	273°29.8'	S 21°21.6'	184°14.7'	N 6°40.9'
15	225°56.7'	46°47.2'	N 0°21.9'	86°33.3'	N 15°22.6'	296°53.5'	S 22°42.7'	288°32.3'	S 21°21.6'	199°17.6'	N 6°40.8'
16	240°59.1'	61°47.4'	N 0°20.9'	101°32.9'	N 15°22.0'	311°55.9'	S 22°42.7'	303°34.8'	S 21°21.6'	214°20.4'	N 6°40.7'
17	256°01.6'	76°47.6'	N 0°20.0'	116°32.5'	N 15°21.3'	326°58.3'	S 22°42.7'	318°37.3'	S 21°21.6'	229°23.3'	N 6°40.6'
18	271°04.1'	91°47.8'	N 0°19.0'	131°32.1'	N 15°20.6'	342°00.7'	S 22°42.7'	333°39.8'	S 21°21.6'	244°26.2'	N 6°40.5'
19	286°06.5'	106°48.1'	N 0°18.0'	146°31.6'	N 15°19.9'	357°03.1'	S 22°42.7'	348°42.3'	S 21°21.6'	259°29.1'	N 6°40.4'
20	301°09.0'	121°48.3'	N 0°17.0'	161°31.2'	N 15°19.2'	12°05.4'	S 22°42.7'	3°44.7'	S 21°21.7'	274°32.0'	N 6°40.3'
21	316°11.4'	136°48.5'	N 0°16.1'	176°30.8'	N 15°18.5'	27°07.8'	S 22°42.7'	18°47.2'	S 21°21.7'	289°34.9'	N 6°40.2'
22	331°13.9'	151°48.7'	N 0°15.1'	191°30.4'	N 15°17.8'	42°10.2'	S 22°42.7'	33°49.7'	S 21°21.7'	304°37.8'	N 6°40.1'
23	346°16.4'	166°48.9'	N 0°14.1'	206°30.0'	N 15°17.1'	57°12.6'	S 22°42.6'	48°52.2'	S 21°21.7'	319°40.7'	N 6°40.1'
		SD 15.9' d -1.0'		v -0.4' d -0.7'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 2.9' d -0.1'	
Mer. pass.		11 h 52 m 55 s		9 h 14 m		19 h 12 m		19 h 45 m		1 h 45 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Sun
0	133°44.3'	S 14°25.2'	7.9'	-12.5'	60.2'	106°09.6'	74°30.1'	67°14.1'	59°22.4'	23°04.7'	24°35.5'	35°40.3'	49°48.0'
1	148°11.2'	S 14°37.7'	7.8'	-12.4'	60.2'	105°50.1'	73°59.6'	66°37.4'	58°45.8'	22°29.3'	25°10.8'	36°04.2'	50°22.0'
2	162°38.0'	S 14°50.0'	7.8'	-12.3'	60.1'	105°30.5'	73°29.2'	66°00.8'	58°09.3'	21°54.0'	25°46.2'	36°28.4'	50°55.9'
3	177°04.8'	S 15°02.3'	7.8'	-12.2'	60.1'	105°10.8'	72°58.9'	65°24.3'	57°32.8'	21°18.9'	26°21.5'	36°52.8'	51°29.8'
4	191°31.6'	S 15°14.4'	7.7'	-12.0'	60.1'	104°51.1'	72°28.6'	64°47.7'	56°56.4'	20°43.8'	26°56.9'	37°17.5'	52°03.7'
5	205°58.3'	S 15°26.5'	7.7'	-11.9'	60.0'	104°31.3'	71°58.4'	64°11.3'	56°20.0'	20°08.8'	27°32.3'	37°42.5'	52°37.5'
6	220°25.0'	S 15°38.4'	7.7'	-11.8'	60.0'	104°11.5'	71°28.3'	63°34.8'	55°43.6'	19°34.0'	28°07.7'	38°07.7'	53°11.3'
7	234°51.7'	S 15°50.3'	7.6'	-11.7'	60.0'	103°51.6'	70°58.2'	62°58.4'	55°07.3'	18°59.3'	28°43.2'	38°33.2'	53°45.1'
8	249°18.3'	S 16°02.0'	7.6'	-11.6'	60.0'	103°31.7'	70°28.2'	62°22.0'	54°31.0'	18°24.7'	29°18.6'	38°58.8'	54°18.8'
9	263°44.9'	S 16°13.6'	7.6'	-11.5'	59.9'	103°11.7'	69°58.3'	61°45.6'	53°54.7'	17°50.3'	29°54.0'	39°24.7'	54°52.5'
10	278°11.5'	S 16°25.1'	7.5'	-11.4'	59.9'	102°51.7'	69°28.5'	61°09.3'	53°18.5'	17°16.1'	30°29.4'	39°50.8'	55°26.2'
11	292°38.0'	S 16°36.5'	7.5'	-11.3'	59.9'	102°31.7'	68°58.7'	60°33.0'	52°42.3'	16°42.0'	31°04.8'	40°17.0'	55°59.8'
12	307°04.5'	S 16°47.8'	7.5'	-11.2'	59.9'	102°11.6'	68°29.0'	59°56.8'	52°06.1'	16°08.1'	31°40.2'	40°43.5'	56°33.4'
13	321°31.0'	S 16°58.9'	7.4'	-11.0'	59.8'	101°51.4'	67°59.4'	59°20.6'	51°30.0'	15°34.5'	32°15.6'	41°10.1'	57°07.0'
14	335°57.4'	S 17°10.0'	7.4'	-10.9'	59.8'	101°31.3'	67°29.9'	58°44.4'	50°53.9'	15°01.0'	32°51.0'	41°36.9'	57°40.5'
15	350°23.8'	S 17°20.9'	7.4'	-10.8'	59.8'	101°11.1'	67°00.4'	58°08.3'	50°17.9'	14°27.8'	33°26.4'	42°03.9'	58°14.0'
16	4°50.2'	S 17°31.7'	7.3'	-10.7'	59.7'	100°50.9'	66°31.1'	57°32.2'	49°41.8'	13°54.9'	34°01.8'	42°31.0'	58°47.5'
17	19°16.5'	S 17°42.4'	7.3'	-10.6'	59.7'	100°30.6'	66°01.8'	56°56.2'	49°05.9'	13°22.3'	34°37.1'	42°58.3'	59°20.9'
18	33°42.8'	S 17°52.9'	7.3'	-10.4'	59.7'	100°10.3'	65°32.6'	56°20.2'	48°30.0'	12°50.0'	35°12.4'	43°25.7'	59°54.3'
19	48°09.1'	S 18°03.4'	7.2'	-10.3'	59.6'	99°50.0'	65°03.5'	55°44.2'	47°54.1'	12°18.1'	35°47.8'	43°53.2'	60°27.7'
20	62°35.3'	S 18°13.7'	7.2'	-10.2'	59.6'	99°29.7'	64°34.6'	55°08.3'	47°18.2'	11°46.6'	36°23.0'	44°20.9'	61°01.0'
21	77°01.5'	S 18°23.9'	7.2'	-10.1'	59.6'	99°09.4'	64°05.6'	54°32.4'	46°42.4'	11°15.5'	36°58.3'	44°48.7'	61°34.3'
22	91°27.7'	S 18°34.0'	7.1'	-9.9'	59.6'	98°49.0'	63°36.8'	53°56.5'	46°06.6'	10°45.0'	37°33.6'	45°16.7'	62°07.5'
23	105°53.8'	S 18°43.9'	7.1'	-9.8'	59.5'	98°28.6'	63°08.1'	53°20.7'	45°30.9'	10°15.1'	38°08.8'	45°44.7'	62°40.7'
Mer. pass.		15 h 40 m SD 16.4'		phase 18%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°27.0'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°17.6'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	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	1°18.8'	181°49.2'	N 0°13.1'	221°29.6'	N 15°16.4'	72°15.0'	S 22°42.6'	63°54.7'	S 21°21.7'	334°43.6'	N 6°40.0'							
1	16°21.3'	196°49.2'	N 0°12.2'	236°29.2'	N 15°15.7'	87°17.4'	S 22°42.6'	78°57.2'	S 21°21.7'	349°46.4'	N 6°39.9'							
2	31°23.8'	211°49.6'	N 0°11.2'	251°28.8'	N 15°15.0'	102°19.8'	S 22°42.6'	93°59.7'	S 21°21.7'	4°49.3'	N 6°39.8'							
3	46°26.2'	226°49.8'	N 0°10.2'	266°28.4'	N 15°14.3'	117°22.1'	S 22°42.6'	109°02.2'	S 21°21.7'	19°52.2'	N 6°39.7'							
4	61°28.7'	241°50.0'	N 0°09.3'	281°28.0'	N 15°13.6'	132°24.5'	S 22°42.6'	124°04.7'	S 21°21.7'	34°55.1'	N 6°39.6'							
5	76°31.2'	256°50.3'	N 0°08.3'	296°27.6'	N 15°12.9'	147°26.9'	S 22°42.6'	139°07.2'	S 21°21.7'	49°58.0'	N 6°39.5'							
6	91°33.6'	271°50.5'	N 0°07.3'	311°27.2'	N 15°12.2'	162°29.3'	S 22°42.6'	154°09.7'	S 21°21.7'	65°00.9'	N 6°39.4'							
7	106°36.1'	286°50.7'	N 0°06.3'	326°26.8'	N 15°11.5'	177°31.7'	S 22°42.6'	169°12.2'	S 21°21.7'	80°03.8'	N 6°39.3'							
8	121°38.5'	301°50.9'	N 0°05.4'	341°26.4'	N 15°10.8'	192°34.1'	S 22°42.6'	184°14.7'	S 21°21.7'	95°06.7'	N 6°39.2'							
9	136°41.0'	316°51.1'	N 0°04.4'	356°26.0'	N 15°10.1'	207°36.5'	S 22°42.6'	199°17.2'	S 21°21.8'	110°09.7'	N 6°39.1'							
10	151°43.5'	331°51.4'	N 0°03.4'	11°25.6'	N 15°09.4'	222°38.8'	S 22°42.6'	214°19.7'	S 21°21.8'	125°12.6'	N 6°39.0'							
11	166°45.9'	346°51.6'	N 0°02.4'	26°25.2'	N 15°08.7'	237°41.2'	S 22°42.6'	229°22.2'	S 21°21.8'	140°15.5'	N 6°39.0'							
12	181°48.4'	1°51.8'	N 0°01.5'	41°24.8'	N 15°08.0'	252°43.6'	S 22°42.5'	244°24.7'	S 21°21.8'	155°18.4'	N 6°38.9'							
13	196°50.9'	16°52.0'	N 0°00.5'	56°24.4'	N 15°07.3'	267°46.0'	S 22°42.5'	259°27.1'	S 21°21.8'	170°21.3'	N 6°38.8'							
14	211°53.3'	31°52.2'	S 0°00.5'	71°24.0'	N 15°06.5'	282°48.4'	S 22°42.5'	274°29.6'	S 21°21.8'	185°24.2'	N 6°38.7'							
15	226°55.8'	46°52.5'	S 0°01.5'	86°23.6'	N 15°05.8'	297°50.7'	S 22°42.5'	289°32.1'	S 21°21.8'	200°27.1'	N 6°38.6'							
16	241°58.3'	61°52.7'	S 0°02.4'	101°23.2'	N 15°05.1'	312°53.1'	S 22°42.5'	304°34.6'	S 21°21.8'	215°30.0'	N 6°38.5'							
17	257°00.7'	76°52.9'	S 0°03.4'	116°22.8'	N 15°04.4'	327°55.5'	S 22°42.5'	319°37.1'	S 21°21.8'	230°32.9'	N 6°38.4'							
18	272°03.2'	91°53.1'	S 0°04.4'	131°22.4'	N 15°03.7'	342°57.9'	S 22°42.5'	334°39.6'	S 21°21.8'	245°35.9'	N 6°38.3'							
19	287°05.7'	106°53.3'	S 0°05.3'	146°22.0'	N 15°03.0'	358°00.3'	S 22°42.5'	349°42.1'	S 21°21.8'	260°38.8'	N 6°38.2'							
20	302°08.1'	121°53.6'	S 0°06.3'	161°21.6'	N 15°02.3'	13°02.6'	S 22°42.5'	4°44.6'	S 21°21.8'	275°41.7'	N 6°38.1'							
21	317°10.6'	136°53.8'	S 0°07.3'	176°21.2'	N 15°01.6'	28°05.0'	S 22°42.5'	19°47.1'	S 21°21.8'	290°44.6'	N 6°38.0'							
22	332°13.0'	151°54.0'	S 0°08.3'	191°20.8'	N 15°00.9'	43°07.4'	S 22°42.5'	34°49.6'	S 21°21.8'	305°47.5'	N 6°37.9'							
23	347°15.5'	166°54.2'	S 0°09.2'	206°20.4'	N 15°00.1'	58°09.8'	S 22°42.4'	49°52.1'	S 21°21.9'	320°50.5'	N 6°37.8'							
		SD 15.9' d -1.0'		v -0.4' d -0.7'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 2.9' d -0.1'								
Mer. pass.		11 h 52 m 33 s		9 h 14 m		19 h 8 m		19 h 41 m		1 h 41 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Altair	-Saturn	-Jupiter	-Antares	+Spica	+Arcturus	+Sun
0	120°19.9'	S 18°53.7'	7.1'	-9.7'	59.5'	98°08.2'	62°39.5'	52°44.9'	44°55.2'	9°45.9'	38°44.0'	46°12.9'	63°13.9'
1	134°46.0'	S 19°03.4'	7.0'	-9.6'	59.5'	97°47.8'	62°11.0'	52°09.2'	44°19.6'		39°19.2'	46°41.1'	63°47.0'
2	149°12.0'	S 19°13.0'	7.0'	-9.4'	59.4'	97°27.4'	61°42.6'	51°33.5'	43°44.0'		39°54.4'	47°09.5'	64°20.1'
3	163°38.0'	S 19°22.4'	7.0'	-9.3'	59.4'	97°06.9'	61°14.3'	50°57.8'	43°08.4'		40°29.5'	47°37.9'	64°53.2'
4	178°04.0'	S 19°31.7'	7.0'	-9.2'	59.4'	96°46.5'	60°46.1'	50°22.2'	42°32.9'		41°04.6'	48°06.5'	65°26.2'
5	192°30.0'	S 19°40.8'	6.9'	-9.0'	59.3'	96°26.0'	60°18.0'	49°46.7'	41°57.4'		41°39.7'	48°35.1'	65°59.2'
6	206°55.9'	S 19°49.9'	6.9'	-8.9'	59.3'	96°05.6'	59°50.1'	49°11.1'	41°21.9'		42°14.7'	49°03.8'	66°32.1'
7	221°21.8'	S 19°58.8'	6.9'	-8.8'	59.3'	95°45.1'	59°22.2'	48°35.6'	40°46.5'		42°49.8'	49°32.6'	67°05.1'
8	235°47.7'	S 20°07.5'	6.8'	-8.6'	59.2'	95°24.7'	58°54.4'	48°00.2'	40°11.2'		43°24.8'	50°01.5'	67°37.9'
9	250°13.5'	S 20°16.2'	6.8'	-8.5'	59.2'	95°04.2'	58°26.8'	47°24.8'	39°35.8'		43°59.7'	50°30.4'	68°10.7'
10	264°39.3'	S 20°24.6'	6.8'	-8.4'	59.2'	94°43.8'	57°59.3'	46°49.4'	39°00.6'		44°34.7'	50°59.4'	68°43.5'
11	279°05.1'	S 20°33.0'	6.8'	-8.2'	59.1'	94°23.3'	57°31.9'	46°14.1'	38°25.3'		45°09.6'	51°28.4'	69°16.3'
12	293°30.9'	S 20°41.2'	6.7'	-8.1'	59.1'	94°02.9'	57°04.7'	45°38.8'	37°50.1'		45°44.4'	51°57.6'	69°49.0'
13	307°56.7'	S 20°49.3'	6.7'	-7.9'	59.1'	93°42.4'	56°37.5'	45°03.6'	37°15.0'		46°19.3'	52°26.7'	70°21.7'
14	322°22.4'	S 20°57.2'	6.7'	-7.8'	59.0'	93°22.0'	56°10.5'	44°28.4'	36°39.8'		46°54.1'	52°56.0'	70°54.3'
15	336°48.1'	S 21°05.0'	6.7'	-7.7'	59.0'	93°01.5'	55°43.6'	43°53.2'	36°04.8'		47°28.9'	53°25.2'	71°26.9'
16	351°13.8'	S 21°12.7'	6.7'	-7.5'	59.0'	92°41.1'	55°16.9'	43°18.1'	35°29.7'		48°03.6'	53°54.6'	71°59.4'
17	5°39.4'	S 21°20.2'	6.6'	-7.4'	59.0'	92°20.7'	54°50.3'	42°43.0'	34°54.8'		48°38.3'	54°24.0'	72°32.0'
18	20°05.1'	S 21°27.6'	6.6'	-7.2'	58.9'	92°00.3'	54°23.8'	42°08.0'	34°19.8'		49°13.0'	54°53.4'	73°04.4'
19	34°30.7'	S 21°34.8'	6.6'	-7.1'	58.9'	91°40.0'	53°57.5'	41°33.0'	33°44.9'		49°47.7'	55°22.8'	73°36.9'
20	48°56.3'	S 21°41.9'	6.6'	-6.9'	58.9'	91°19.6'	53°31.3'	40°58.1'	33°10.0'		50°22.3'	55°52.3'	74°09.3'
21	63°21.9'	S 21°48.8'	6.6'	-6.8'	58.8'	90°59.3'	53°05.3'	40°23.2'	32°35.2'		50°56.9'	56°21.9'	74°41.6'
22	77°47.5'	S 21°55.6'	6.6'	-6.7'	58.8'	90°38.9'	52°39.4'	39°48.3'	32°00.4'		51°31.4'	56°51.4'	75°13.9'
23	92°13.0'	S 22°02.3'	6.5'	-6.5'	58.8'	90°18.6'	52°13.7'	39°13.5'	31°25.7'		52°05.9'	57°21.0'	75°46.2'
Mer. pass.		16 h 36 m SD 16.2'		phase 27%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.9'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.5'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.8'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°17.1'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	2°18.0'	181°54.4'	S 0°10.2'	221°20.0'	N 14°59.4'	73°12.2'	S 22°42.4'	64°54.6'	S 21°21.9'	335°53.4'	N 6°37.7'
1	17°20.4'	196°54.6'	S 0°11.2'	236°19.6'	N 14°58.7'	88°14.5'	S 22°42.4'	79°57.0'	S 21°21.9'	350°56.3'	N 6°37.6'
2	32°22.9'	211°54.9'	S 0°12.2'	251°19.2'	N 14°58.0'	103°16.9'	S 22°42.4'	94°59.5'	S 21°21.9'	5°59.3'	N 6°37.5'
3	47°25.4'	226°55.1'	S 0°13.1'	266°18.8'	N 14°57.3'	118°19.3'	S 22°42.4'	110°02.0'	S 21°21.9'	21°02.2'	N 6°37.4'
4	62°27.8'	241°55.3'	S 0°14.1'	281°18.4'	N 14°56.5'	133°21.7'	S 22°42.4'	125°04.5'	S 21°21.9'	36°05.1'	N 6°37.3'
5	77°30.3'	256°55.5'	S 0°15.1'	296°18.1'	N 14°55.8'	148°24.0'	S 22°42.4'	140°07.0'	S 21°21.9'	51°08.0'	N 6°37.2'
6	92°32.8'	271°55.7'	S 0°16.1'	311°17.7'	N 14°55.1'	163°26.4'	S 22°42.4'	155°09.5'	S 21°21.9'	66°11.0'	N 6°37.1'
7	107°35.2'	286°56.0'	S 0°17.0'	326°17.3'	N 14°54.4'	178°28.8'	S 22°42.4'	170°12.0'	S 21°21.9'	81°13.9'	N 6°37.0'
8	122°37.7'	301°56.2'	S 0°18.0'	341°16.9'	N 14°53.7'	193°31.2'	S 22°42.4'	185°14.5'	S 21°21.9'	96°16.8'	N 6°36.9'
9	137°40.2'	316°56.4'	S 0°19.0'	356°16.5'	N 14°52.9'	208°33.5'	S 22°42.4'	200°17.0'	S 21°21.9'	111°19.8'	N 6°36.8'
10	152°42.6'	331°56.6'	S 0°19.9'	11°16.1'	N 14°52.2'	223°35.9'	S 22°42.4'	215°19.5'	S 21°21.9'	126°22.7'	N 6°36.7'
11	167°45.1'	346°56.8'	S 0°20.9'	26°15.7'	N 14°51.5'	238°38.3'	S 22°42.3'	230°21.9'	S 21°21.9'	141°25.7'	N 6°36.6'
12	182°47.5'	1°57.1'	S 0°21.9'	41°15.3'	N 14°50.8'	253°40.7'	S 22°42.3'	245°24.4'	S 21°21.9'	156°28.6'	N 6°36.5'
13	197°50.0'	16°57.3'	S 0°22.9'	56°14.9'	N 14°50.0'	268°43.0'	S 22°42.3'	260°26.9'	S 21°21.9'	171°31.5'	N 6°36.4'
14	212°52.5'	31°57.5'	S 0°23.8'	71°14.5'	N 14°49.3'	283°45.4'	S 22°42.3'	275°29.4'	S 21°22.0'	186°34.5'	N 6°36.3'
15	227°54.9'	46°57.7'	S 0°24.8'	86°14.1'	N 14°48.6'	298°47.8'	S 22°42.3'	290°31.9'	S 21°22.0'	201°37.4'	N 6°36.2'
16	242°57.4'	61°57.9'	S 0°25.8'	101°13.7'	N 14°47.9'	313°50.2'	S 22°42.3'	305°34.4'	S 21°22.0'	216°40.4'	N 6°36.1'
17	257°59.9'	76°58.1'	S 0°26.8'	116°13.3'	N 14°47.1'	328°52.5'	S 22°42.3'	320°36.9'	S 21°22.0'	231°43.3'	N 6°36.0'
18	273°02.3'	91°58.4'	S 0°27.7'	131°12.9'	N 14°46.4'	343°54.9'	S 22°42.3'	335°39.4'	S 21°22.0'	246°46.3'	N 6°35.9'
19	288°04.8'	106°58.6'	S 0°28.7'	146°12.5'	N 14°45.7'	358°57.3'	S 22°42.3'	350°41.8'	S 21°22.0'	261°49.2'	N 6°35.8'
20	303°07.3'	121°58.8'	S 0°29.7'	161°12.1'	N 14°44.9'	13°59.6'	S 22°42.3'	5°44.3'	S 21°22.0'	276°52.2'	N 6°35.7'
21	318°09.7'	136°59.0'	S 0°30.7'	176°11.7'	N 14°44.2'	29°02.0'	S 22°42.2'	20°46.8'	S 21°22.0'	291°55.1'	N 6°35.6'
22	333°12.2'	151°59.2'	S 0°31.6'	191°11.3'	N 14°43.5'	44°04.4'	S 22°42.2'	35°49.3'	S 21°22.0'	306°58.1'	N 6°35.5'
23	348°14.7'	166°59.4'	S 0°32.6'	206°10.9'	N 14°42.7'	59°06.7'	S 22°42.2'	50°51.8'	S 21°22.0'	322°01.0'	N 6°35.4'
		SD 15.9' d -1.0'		v -0.4' d -0.7'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 2.9' d -0.1'	
Mer. pass.		11 h 52 m 12 s		9 h 15 m		19 h 4 m		19 h 37 m		1 h 36 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Hadar	+Spica	+Sun
0	106°38.6'	S 22°08.8'	6.5'	-6.4'	58.7'	78°30.7'	51°48.1'	38°38.7'	30°51.0'			52°40.4'	76°18.4'
1	121°04.1'	S 22°15.1'	6.5'	-6.2'	58.7'	77°57.4'	51°22.7'	38°04.0'	30°16.4'			53°14.8'	76°50.6'
2	135°29.6'	S 22°21.3'	6.5'	-6.1'	58.7'	77°24.1'	50°57.4'	37°29.3'	29°41.8'	9°21.1'		53°49.2'	77°22.8'
3	149°55.1'	S 22°27.4'	6.5'	-5.9'	58.6'	76°50.9'	50°32.3'	36°54.6'	29°07.2'	9°48.8'		54°23.6'	77°54.9'
4	164°20.6'	S 22°33.3'	6.5'	-5.8'	58.6'	76°17.7'	50°07.4'	36°20.0'	28°32.7'	10°17.2'		54°57.9'	78°27.0'
5	178°46.1'	S 22°39.1'	6.5'	-5.6'	58.6'	75°44.6'	49°42.6'	35°45.5'	27°58.2'	10°46.1'		55°32.2'	78°59.0'
6	193°11.6'	S 22°44.7'	6.5'	-5.5'	58.5'	75°11.5'	49°18.1'	35°11.0'	27°23.8'	11°15.5'		56°06.5'	79°31.0'
7	207°37.1'	S 22°50.2'	6.5'	-5.3'	58.5'	74°38.5'	48°53.7'	34°36.5'	26°49.4'	11°45.3'		56°40.7'	80°03.0'
8	222°02.5'	S 22°55.5'	6.5'	-5.2'	58.5'	74°05.5'	48°29.4'	34°02.0'	26°15.0'	12°15.5'		57°14.9'	80°34.9'
9	236°28.0'	S 23°00.7'	6.5'	-5.0'	58.4'	73°32.6'	48°05.4'	33°27.6'	25°40.7'	12°46.1'		57°49.1'	81°06.8'
10	250°53.4'	S 23°05.8'	6.5'	-4.9'	58.4'	72°59.7'	47°41.5'	32°53.3'	25°06.4'	13°16.9'		58°23.2'	81°38.6'
11	265°18.9'	S 23°10.6'	6.5'	-4.7'	58.4'	72°26.8'	47°17.9'	32°19.0'	24°32.2'	13°47.9'		58°57.3'	82°10.4'
12	279°44.4'	S 23°15.4'	6.5'	-4.6'	58.3'	71°54.0'	46°54.4'	31°44.7'	23°58.0'	14°19.2'		59°31.3'	82°42.2'
13	294°09.8'	S 23°19.9'	6.5'	-4.4'	58.3'	71°21.3'	46°31.2'	31°10.5'	23°23.9'	14°50.6'		60°05.3'	83°13.9'
14	308°35.3'	S 23°24.4'	6.5'	-4.3'	58.3'	70°48.6'	46°08.1'	30°36.3'	22°49.8'	15°22.3'		60°39.3'	83°45.6'
15	323°00.7'	S 23°28.7'	6.5'	-4.1'	58.2'	70°15.9'	45°45.2'	30°02.2'	22°15.8'	15°54.0'		61°13.3'	84°17.2'
16	337°26.2'	S 23°32.8'	6.5'	-4.0'	58.2'	69°43.3'	45°22.6'	29°28.1'	21°41.8'	16°25.9'		61°47.2'	84°48.8'
17	351°51.7'	S 23°36.8'	6.5'	-3.8'	58.2'	69°10.8'	45°00.2'	28°54.1'	21°07.8'	16°57.9'		62°21.0'	85°20.4'
18	6°17.1'	S 23°40.6'	6.5'	-3.7'	58.1'	68°38.3'	44°38.0'	28°20.1'	20°33.9'	17°30.0'		62°54.9'	85°51.9'
19	20°42.6'	S 23°44.3'	6.5'	-3.5'	58.1'	68°05.8'	44°16.0'	27°46.1'	20°00.0'	18°02.1'		63°28.7'	86°23.4'
20	35°08.1'	S 23°47.8'	6.5'	-3.4'	58.1'	67°33.4'	43°54.2'	27°12.2'	19°26.2'	18°34.4'		64°02.4'	86°54.8'
21	49°33.6'	S 23°51.2'	6.5'	-3.2'	58.0'	67°01.0'	43°32.7'	26°38.3'	18°52.4'	19°06.7'		64°36.1'	87°26.2'
22	63°59.1'	S 23°54.4'	6.5'	-3.1'	58.0'	66°28.7'	43°11.4'	26°04.5'	18°18.7'	19°39.0'		65°09.8'	87°57.6'
23	78°24.6'	S 23°57.5'	6.5'	-2.9'	58.0'	65°56.5'	42°50.4'	25°30.7'	17°45.0'	20°11.4'	53°57.0'	65°43.5'	88°28.9'
Mer. pass.		17 h 34 m SD 16.0'		phase 38%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.2'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°16.6'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.4'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	3°17.1'	181°59.7'	S 0°33.6'	221°10.5'	N 14°42.0'	74°09.1'	S 22°42.2'	65°54.3'	S 21°22.0'	337°04.0'	N 6°35.3'
1	18°19.6'	196°59.9'	S 0°34.5'	236°10.1'	N 14°41.3'	89°11.5'	S 22°42.2'	80°56.8'	S 21°22.0'	352°06.9'	N 6°35.2'
2	33°22.0'	212°00.1'	S 0°35.5'	251°09.7'	N 14°40.5'	104°13.9'	S 22°42.2'	95°59.2'	S 21°22.0'	7°09.9'	N 6°35.1'
3	48°24.5'	227°00.3'	S 0°36.5'	266°09.3'	N 14°39.8'	119°16.2'	S 22°42.2'	111°01.7'	S 21°22.0'	22°12.9'	N 6°35.0'
4	63°27.0'	242°00.5'	S 0°37.5'	281°08.9'	N 14°39.1'	134°18.6'	S 22°42.2'	126°04.2'	S 21°22.0'	37°15.8'	N 6°34.9'
5	78°29.4'	257°00.8'	S 0°38.4'	296°08.5'	N 14°38.3'	149°21.0'	S 22°42.2'	141°06.7'	S 21°22.0'	52°18.8'	N 6°34.8'
6	93°31.9'	272°01.0'	S 0°39.4'	311°08.1'	N 14°37.6'	164°23.3'	S 22°42.2'	156°09.2'	S 21°22.1'	67°21.8'	N 6°34.6'
7	108°34.4'	287°01.2'	S 0°40.4'	326°07.7'	N 14°36.8'	179°25.7'	S 22°42.1'	171°11.7'	S 21°22.1'	82°24.7'	N 6°34.5'
8	123°36.8'	302°01.4'	S 0°41.4'	341°07.3'	N 14°36.1'	194°28.1'	S 22°42.1'	186°14.2'	S 21°22.1'	97°27.7'	N 6°34.4'
9	138°39.3'	317°01.6'	S 0°42.3'	356°06.9'	N 14°35.4'	209°30.4'	S 22°42.1'	201°16.6'	S 21°22.1'	112°30.6'	N 6°34.3'
10	153°41.8'	332°01.8'	S 0°43.3'	11°06.5'	N 14°34.6'	224°32.8'	S 22°42.1'	216°19.1'	S 21°22.1'	127°33.6'	N 6°34.2'
11	168°44.2'	347°02.1'	S 0°44.3'	26°06.1'	N 14°33.9'	239°35.2'	S 22°42.1'	231°21.6'	S 21°22.1'	142°36.6'	N 6°34.1'
12	183°46.7'	2°02.3'	S 0°45.3'	41°05.7'	N 14°33.1'	254°37.5'	S 22°42.1'	246°24.1'	S 21°22.1'	157°39.6'	N 6°34.0'
13	198°49.1'	17°02.5'	S 0°46.2'	56°05.3'	N 14°32.4'	269°39.9'	S 22°42.1'	261°26.6'	S 21°22.1'	172°42.5'	N 6°33.9'
14	213°51.6'	32°02.7'	S 0°47.2'	71°04.9'	N 14°31.6'	284°42.2'	S 22°42.1'	276°29.1'	S 21°22.1'	187°45.5'	N 6°33.8'
15	228°54.1'	47°02.9'	S 0°48.2'	86°04.5'	N 14°30.9'	299°44.6'	S 22°42.1'	291°31.6'	S 21°22.1'	202°48.5'	N 6°33.7'
16	243°56.5'	62°03.1'	S 0°49.2'	101°04.1'	N 14°30.1'	314°47.0'	S 22°42.1'	306°34.0'	S 21°22.1'	217°51.5'	N 6°33.6'
17	258°59.0'	77°03.4'	S 0°50.1'	116°03.7'	N 14°29.4'	329°49.3'	S 22°42.0'	321°36.5'	S 21°22.1'	232°54.4'	N 6°33.5'
18	274°01.5'	92°03.6'	S 0°51.1'	131°03.3'	N 14°28.6'	344°51.7'	S 22°42.0'	336°39.0'	S 21°22.1'	247°57.4'	N 6°33.3'
19	289°03.9'	107°03.8'	S 0°52.1'	146°03.0'	N 14°27.9'	359°54.1'	S 22°42.0'	351°41.5'	S 21°22.1'	263°00.4'	N 6°33.2'
20	304°06.4'	122°04.0'	S 0°53.0'	161°02.6'	N 14°27.1'	14°56.4'	S 22°42.0'	6°44.0'	S 21°22.1'	278°03.4'	N 6°33.1'
21	319°08.9'	137°04.2'	S 0°54.0'	176°02.2'	N 14°26.4'	29°58.8'	S 22°42.0'	21°46.4'	S 21°22.1'	293°06.3'	N 6°33.0'
22	334°11.3'	152°04.7'	S 0°55.0'	191°01.8'	N 14°25.6'	45°01.1'	S 22°42.0'	36°48.9'	S 21°22.1'	308°09.3'	N 6°32.9'
23	349°13.8'	167°04.7'	S 0°56.0'	206°01.4'	N 14°24.9'	60°03.5'	S 22°42.0'	51°51.4'	S 21°22.1'	323°12.3'	N 6°32.8'
		SD 15.9' d -1.0'		v -0.4' d -0.7'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 3.0' d -0.1'	
Mer. pass.		11 h 51 m 52 s		9 h 16 m		19 h 0 m		19 h 33 m		1 h 31 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Fomalhaut	-Altair	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Sun
0	92°50.2'	S 24°00.4'	6.6'	-2.8'	57.9'	65°24.3'	42°29.6'	24°57.0'	17°11.4'	20°43.8'		54°12.1'	89°00.2'
1	107°15.7'	S 24°03.2'	6.6'	-2.6'	57.9'	64°52.1'	42°09.0'	24°23.3'	16°37.8'	21°16.3'		54°27.3'	89°31.5'
2	121°41.3'	S 24°05.8'	6.6'	-2.5'	57.9'	64°20.0'	41°48.7'	23°49.6'	16°04.3'	21°48.8'		54°42.7'	90°02.7'
3	136°06.9'	S 24°08.3'	6.6'	-2.3'	57.8'	63°48.0'	41°28.7'	23°16.0'	15°30.8'	22°21.3'		54°58.3'	90°33.9'
4	150°32.5'	S 24°10.6'	6.6'	-2.2'	57.8'	63°16.0'	41°09.0'	22°42.5'	14°57.4'	22°53.9'		55°14.1'	91°05.0'
5	164°58.1'	S 24°12.8'	6.6'	-2.0'	57.8'	62°44.0'	40°49.5'	22°09.0'	14°24.0'	23°26.4'	51°25.8'	55°30.0'	91°36.1'
6	179°23.7'	S 24°14.8'	6.7'	-1.9'	57.7'	62°12.2'	40°30.3'	21°35.5'	13°50.7'	23°59.0'	51°40.9'	55°46.0'	92°07.1'
7	193°49.4'	S 24°16.7'	6.7'	-1.7'	57.7'	61°40.3'	40°11.3'	21°02.1'	13°17.4'	24°31.6'	51°56.1'	56°02.3'	92°38.2'
8	208°15.1'	S 24°18.4'	6.7'	-1.6'	57.7'	61°08.5'	39°52.7'	20°28.8'	12°44.2'	25°04.2'	52°11.5'	56°18.6'	93°09.2'
9	222°40.8'	S 24°20.0'	6.7'	-1.4'	57.6'	60°36.8'	39°34.3'	19°55.4'	12°11.0'	25°36.8'	52°27.0'	56°35.2'	93°40.1'
10	237°06.5'	S 24°21.4'	6.8'	-1.3'	57.6'	60°05.1'	39°16.3'	19°22.2'	11°37.9'	26°09.4'	52°42.8'	56°51.8'	94°11.0'
11	251°32.3'	S 24°22.7'	6.8'	-1.1'	57.6'	59°33.5'	38°58.5'	18°49.0'	11°04.9'	26°41.9'	52°58.7'	57°08.6'	94°41.9'
12	265°58.1'	S 24°23.8'	6.8'	-1.0'	57.5'	59°01.9'	38°41.1'	18°15.8'	10°32.0'	27°14.5'	53°14.8'	57°25.6'	95°12.7'
13	280°23.9'	S 24°24.8'	6.9'	-0.8'	57.5'	58°30.4'	38°24.0'	17°42.7'	9°59.1'	27°47.1'	53°31.1'	57°42.7'	95°43.5'
14	294°49.8'	S 24°25.6'	6.9'	-0.7'	57.5'	57°59.0'	38°07.2'	17°09.6'	9°26.3'	28°19.7'	53°47.5'	57°59.9'	96°14.3'
15	309°15.7'	S 24°26.3'	6.9'	-0.5'	57.4'	57°27.6'	37°50.7'	16°36.6'	8°53.6'	28°52.2'	54°04.1'	58°17.2'	96°45.0'
16	323°41.6'	S 24°26.8'	7.0'	-0.4'	57.4'	56°56.3'	37°34.6'	16°03.7'	8°21.0'	29°24.8'	54°20.9'	58°34.7'	97°15.7'
17	338°07.6'	S 24°27.2'	7.0'	-0.2'	57.4'	56°25.0'	37°18.8'	15°30.8'	7°48.5'	29°57.3'	54°37.8'	58°52.3'	97°46.4'
18	352°33.6'	S 24°27.5'	7.0'	-0.1'	57.3'	55°53.8'	37°03.3'	14°58.0'	7°16.2'	30°29.9'	54°54.8'	59°10.0'	98°17.0'
19	6°59.6'	S 24°27.6'	7.1'	0.0'	57.3'	55°22.6'		14°25.2'	6°44.0'	31°02.4'	55°12.0'	59°27.8'	98°47.6'
20	21°25.7'	S 24°27.5'	7.1'	0.2'	57.3'	54°51.5'		13°52.6'	6°12.0'	31°34.9'	55°29.4'	59°45.7'	99°18.1'
21	35°51.8'	S 24°27.3'	7.2'	0.3'	57.2'	54°20.4'		13°19.9'	5°40.2'	32°07.4'	55°46.8'	60°03.8'	99°48.6'
22	50°18.0'	S 24°27.0'	7.2'	0.5'	57.2'	53°49.5'		12°47.4'	5°08.7'	32°39.8'	56°04.5'	60°22.0'	100°19.1'
23	64°44.1'	S 24°26.5'	7.2'	0.6'	57.2'	53°18.5'		12°14.9'	4°37.6'	33°12.3'	56°22.2'	60°40.2'	100°49.6'
Mer. pass.		18 h 31 m SD 15.8' phase 49%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°16.2'	N 89°20.8'
Rigel Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	4°16.3'	S 0°56.9'	182°04.9'	S 0°56.9'	221°01.0'	N 14°24.1'	75°05.9'	S 22°42.0'	66°53.9'	S 21°22.2'	338°15.3'	N 6°32.7'
1	19°18.7'	S 0°57.9'	197°05.1'	S 0°57.9'	236°00.6'	N 14°23.4'	90°08.2'	S 22°42.0'	81°56.4'	S 21°22.2'	353°18.3'	N 6°32.6'
2	34°21.2'	S 0°58.9'	212°05.3'	S 0°58.9'	251°00.2'	N 14°22.6'	105°10.6'	S 22°41.9'	96°58.9'	S 21°22.2'	8°21.3'	N 6°32.5'
3	49°23.6'	S 0°59.9'	227°05.5'	S 0°59.9'	265°59.8'	N 14°21.9'	120°13.0'	S 22°41.9'	112°01.3'	S 21°22.2'	23°24.3'	N 6°32.4'
4	64°26.1'	S 1°00.8'	242°05.7'	S 1°00.8'	280°59.4'	N 14°21.1'	135°15.3'	S 22°41.9'	127°03.8'	S 21°22.2'	38°27.3'	N 6°32.2'
5	79°28.6'	S 1°01.8'	257°06.0'	S 1°01.8'	295°59.0'	N 14°20.4'	150°17.7'	S 22°41.9'	142°06.3'	S 21°22.2'	53°30.2'	N 6°32.1'
6	94°31.0'	S 1°02.8'	272°06.2'	S 1°02.8'	310°58.6'	N 14°19.6'	165°20.0'	S 22°41.9'	157°08.8'	S 21°22.2'	68°33.2'	N 6°32.0'
7	109°33.5'	S 1°03.8'	287°06.4'	S 1°03.8'	325°58.2'	N 14°18.9'	180°22.4'	S 22°41.9'	172°11.3'	S 21°22.2'	83°36.2'	N 6°31.9'
8	124°36.0'	S 1°04.7'	302°06.6'	S 1°04.7'	340°57.8'	N 14°18.1'	195°24.7'	S 22°41.9'	187°13.7'	S 21°22.2'	98°39.2'	N 6°31.8'
9	139°38.4'	S 1°05.7'	317°06.8'	S 1°05.7'	355°57.4'	N 14°17.3'	210°27.1'	S 22°41.9'	202°16.2'	S 21°22.2'	113°42.2'	N 6°31.7'
10	154°40.9'	S 1°06.7'	332°07.0'	S 1°06.7'	10°57.0'	N 14°16.6'	225°29.5'	S 22°41.9'	217°18.7'	S 21°22.2'	128°45.2'	N 6°31.6'
11	169°43.4'	S 1°07.7'	347°07.2'	S 1°07.7'	25°56.6'	N 14°15.8'	240°31.8'	S 22°41.8'	232°21.2'	S 21°22.2'	143°48.2'	N 6°31.4'
12	184°45.8'	S 1°08.6'	2°07.5'	S 1°08.6'	40°56.2'	N 14°15.1'	255°34.2'	S 22°41.8'	247°23.7'	S 21°22.2'	158°51.2'	N 6°31.3'
13	199°48.3'	S 1°09.6'	17°07.7'	S 1°09.6'	55°55.8'	N 14°14.3'	270°36.5'	S 22°41.8'	262°26.1'	S 21°22.2'	173°54.2'	N 6°31.2'
14	214°50.8'	S 1°10.6'	32°07.9'	S 1°10.6'	70°55.4'	N 14°13.5'	285°38.9'	S 22°41.8'	277°28.6'	S 21°22.2'	188°57.2'	N 6°31.1'
15	229°53.2'	S 1°11.5'	47°08.1'	S 1°11.5'	85°55.1'	N 14°12.8'	300°41.2'	S 22°41.8'	292°31.1'	S 21°22.2'	204°00.2'	N 6°31.0'
16	244°55.7'	S 1°12.5'	62°08.3'	S 1°12.5'	100°54.7'	N 14°12.0'	315°43.6'	S 22°41.8'	307°33.6'	S 21°22.2'	219°03.2'	N 6°30.9'
17	259°58.1'	S 1°13.5'	77°08.5'	S 1°13.5'	115°54.3'	N 14°11.2'	330°46.0'	S 22°41.8'	322°36.1'	S 21°22.2'	234°06.2'	N 6°30.8'
18	275°00.6'	S 1°14.5'	92°08.8'	S 1°14.5'	130°53.9'	N 14°10.5'	345°48.3'	S 22°41.8'	337°38.5'	S 21°22.2'	249°09.2'	N 6°30.6'
19	290°03.1'	S 1°15.4'	107°09.0'	S 1°15.4'	145°53.5'	N 14°09.7'	0°50.7'	S 22°41.7'	352°41.0'	S 21°22.2'	264°12.3'	N 6°30.5'
20	305°05.5'	S 1°16.4'	122°09.2'	S 1°16.4'	160°53.1'	N 14°08.9'	15°53.0'	S 22°41.7'	7°43.5'	S 21°22.3'	279°15.3'	N 6°30.4'
21	320°08.0'	S 1°17.4'	137°09.4'	S 1°17.4'	175°52.7'	N 14°08.2'	30°55.4'	S 22°41.7'	22°46.0'	S 21°22.3'	294°18.3'	N 6°30.3'
22	335°10.5'	S 1°18.4'	152°09.6'	S 1°18.4'	190°52.3'	N 14°07.4'	45°57.7'	S 22°41.7'	37°48.5'	S 21°22.3'	309°21.3'	N 6°30.2'
23	350°12.9'	S 1°19.3'	167°09.8'	S 1°19.3'	205°51.9'	N 14°06.6'	61°00.1'	S 22°41.7'	52°50.9'	S 21°22.3'	324°24.3'	N 6°30.1'
		SD 15.9' d -1.0'		v -0.4' d -0.8'		v 2.4' d 0.0'		v 2.5' d -0.0'		v 3.0' d -0.1'		
Mer. pass.		11 h 51 m 31 s		9 h 16 m		18 h 57 m		19 h 29 m		1 h 27 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Saturn	-Jupiter	+Antares	+Rigel Kent	+Hadar	+Sun
0	79°10.4'	S 24°25.9'	7.3'	0.8'	57.2'	74°35.9'	52°47.7'	11°42.6'	4°07.0'	33°44.7'	56°40.1'	60°58.6'	101°20.0'
1	93°36.7'	S 24°25.1'	7.3'	0.9'	57.1'	74°18.2'	52°16.9'	11°10.3'		34°17.1'	56°58.1'	61°17.1'	101°50.3'
2	108°03.0'	S 24°24.2'	7.4'	1.1'	57.1'	74°00.6'	51°46.1'	10°38.1'		34°49.5'	57°16.2'	61°35.6'	102°20.7'
3	122°29.4'	S 24°23.2'	7.4'	1.2'	57.1'	73°43.1'	51°15.5'	10°06.1'		35°21.9'	57°34.5'	61°54.3'	102°51.0'
4	136°55.8'	S 24°22.0'	7.5'	1.3'	57.0'	73°25.7'	50°44.9'	9°34.1'		35°54.3'	57°52.9'	62°13.1'	103°21.2'
5	151°22.3'	S 24°20.6'	7.5'	1.5'	57.0'	73°08.3'	50°14.3'	9°02.4'		36°26.6'	58°11.4'	62°31.9'	103°51.5'
6	165°48.8'	S 24°19.2'	7.6'	1.6'	57.0'	72°51.1'	49°43.8'	8°30.7'		36°58.9'	58°30.0'	62°50.9'	104°21.7'
7	180°15.4'	S 24°17.6'	7.6'	1.8'	56.9'	72°33.9'	49°13.4'	7°59.3'		37°31.2'	58°48.7'	63°09.9'	104°51.8'
8	194°42.0'	S 24°15.8'	7.7'	1.9'	56.9'	72°16.8'	48°43.1'	7°28.1'		38°03.5'	59°07.5'	63°29.0'	105°22.0'
9	209°08.7'	S 24°13.9'	7.7'	2.0'	56.9'	71°59.8'	48°12.8'	6°57.1'		38°35.7'	59°26.4'	63°48.2'	105°52.1'
10	223°35.4'	S 24°11.9'	7.8'	2.2'	56.9'	71°42.9'	47°42.6'	6°26.5'		39°08.0'	59°45.5'	64°07.5'	106°22.1'
11	238°02.2'	S 24°09.7'	7.8'	2.3'	56.8'	71°26.1'	47°12.5'	5°56.2'		39°40.2'	60°04.6'	64°26.9'	106°52.2'
12	252°29.1'	S 24°07.4'	7.9'	2.4'	56.8'	71°09.4'	46°42.4'	5°26.5'		40°12.3'	60°23.8'	64°46.3'	107°22.2'
13	266°56.0'	S 24°05.0'	8.0'	2.6'	56.8'	70°52.7'	46°12.5'			40°44.5'	60°43.1'	65°05.8'	107°52.1'
14	281°22.9'	S 24°02.4'	8.0'	2.7'	56.7'	70°36.2'	45°42.6'		4°08.4'	41°16.6'	61°02.6'	65°25.4'	108°22.1'
15	295°49.9'	S 23°59.7'	8.1'	2.8'	56.7'	70°19.8'	45°12.7'		4°38.6'	41°48.8'	61°22.1'	65°45.0'	108°52.0'
16	310°17.0'	S 23°56.9'	8.1'	3.0'	56.7'	70°03.4'	44°43.0'		5°09.1'	42°20.8'	61°41.7'	66°04.8'	109°21.9'
17	324°44.2'	S 23°53.9'	8.2'	3.1'	56.6'	69°47.2'	44°13.3'		5°40.0'	42°52.9'	62°01.3'	66°24.5'	109°51.7'
18	339°11.4'	S 23°50.8'	8.3'	3.2'	56.6'	69°31.1'	43°43.7'		6°11.1'	43°25.0'	62°21.1'	66°44.4'	110°21.5'
19	353°38.6'	S 23°47.6'	8.3'	3.4'	56.6'	69°15.0'	43°14.2'		6°42.3'	43°57.0'	62°41.0'	67°04.3'	110°51.3'
20	8°06.0'	S 23°44.2'	8.4'	3.5'	56.6'	68°59.1'	42°44.7'		7°13.7'	44°29.0'	63°00.9'	67°24.3'	111°21.0'
21	22°33.4'	S 23°40.8'	8.5'	3.6'	56.5'	68°43.3'	42°15.4'		7°45.2'	45°00.9'	63°20.9'	67°44.3'	111°50.7'
22	37°00.8'	S 23°37.1'	8.5'	3.7'	56.5'	68°27.6'	41°46.1'		8°16.7'	45°32.9'	63°41.0'	68°04.4'	112°20.4'
23	51°28.3'	S 23°33.4'	8.6'	3.9'	56.5'	68°11.9'	41°17.0'		8°48.2'	46°04.8'	64°01.1'	68°24.6'	112°50.1'
Mer. pass.		19 h 26 m SD 15.6'		phase 60%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°15.7'	N 89°20.8'
Rigel Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.7'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°54.0'	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	5°15.4'	182°10.0'	S 1°20.3'	220°51.5'	N 14°05.9'		76°02.4'	S 22°41.7'		67°53.4'	S 21°22.3'		339°27.3'	N 6°29.9'				
1	20°17.9'	197°10.3'	S 1°21.3'	235°51.1'	N 14°05.1'		91°04.8'	S 22°41.7'		82°55.9'	S 21°22.3'		354°30.3'	N 6°29.8'				
2	35°20.3'	212°10.5'	S 1°22.3'	250°50.7'	N 14°04.3'		106°07.1'	S 22°41.7'		97°58.4'	S 21°22.3'		9°33.3'	N 6°29.7'				
3	50°22.8'	227°10.7'	S 1°23.2'	265°50.3'	N 14°03.5'		121°09.5'	S 22°41.7'		113°00.8'	S 21°22.3'		24°36.4'	N 6°29.6'				
4	65°25.3'	242°10.9'	S 1°24.2'	280°49.9'	N 14°02.8'		136°11.8'	S 22°41.6'		128°03.3'	S 21°22.3'		39°39.4'	N 6°29.5'				
5	80°27.7'	257°11.1'	S 1°25.2'	295°49.5'	N 14°02.0'		151°14.2'	S 22°41.6'		143°05.8'	S 21°22.3'		54°42.4'	N 6°29.4'				
6	95°30.2'	272°11.3'	S 1°26.1'	310°49.2'	N 14°01.2'		166°16.5'	S 22°41.6'		158°08.3'	S 21°22.3'		69°45.4'	N 6°29.2'				
7	110°32.6'	287°11.5'	S 1°27.1'	325°48.8'	N 14°00.4'		181°18.9'	S 22°41.6'		173°10.7'	S 21°22.3'		84°48.4'	N 6°29.1'				
8	125°35.1'	302°11.8'	S 1°28.1'	340°48.4'	N 13°59.7'		196°21.2'	S 22°41.6'		188°13.2'	S 21°22.3'		99°51.5'	N 6°29.0'				
9	140°37.6'	317°12.0'	S 1°29.1'	355°48.0'	N 13°58.9'		211°23.6'	S 22°41.6'		203°15.7'	S 21°22.3'		114°54.5'	N 6°28.9'				
10	155°40.0'	332°12.2'	S 1°30.0'	10°47.6'	N 13°58.1'		226°25.9'	S 22°41.6'		218°18.2'	S 21°22.3'		129°57.5'	N 6°28.8'				
11	170°42.5'	347°12.4'	S 1°31.0'	25°47.2'	N 13°57.3'		241°28.3'	S 22°41.6'		233°20.7'	S 21°22.3'		145°00.5'	N 6°28.6'				
12	185°45.0'	2°12.6'	S 1°32.0'	40°46.8'	N 13°56.6'		256°30.6'	S 22°41.5'		248°23.1'	S 21°22.3'		160°03.6'	N 6°28.5'				
13	200°47.4'	17°12.8'	S 1°33.0'	55°46.4'	N 13°55.8'		271°33.0'	S 22°41.5'		263°25.6'	S 21°22.3'		175°06.6'	N 6°28.4'				
14	215°49.9'	32°13.0'	S 1°33.9'	70°46.0'	N 13°55.0'		286°35.3'	S 22°41.5'		278°28.1'	S 21°22.3'		190°09.6'	N 6°28.3'				
15	230°52.4'	47°13.3'	S 1°34.9'	85°45.6'	N 13°54.2'		301°37.7'	S 22°41.5'		293°30.6'	S 21°22.3'		205°12.7'	N 6°28.2'				
16	245°54.8'	62°13.5'	S 1°35.9'	100°45.2'	N 13°53.4'		316°40.0'	S 22°41.5'		308°33.0'	S 21°22.3'		220°15.7'	N 6°28.0'				
17	260°57.3'	77°13.7'	S 1°36.9'	115°44.8'	N 13°52.6'		331°42.4'	S 22°41.5'		323°35.5'	S 21°22.3'		235°18.7'	N 6°27.9'				
18	275°59.7'	92°13.9'	S 1°37.8'	130°44.5'	N 13°51.9'		346°44.7'	S 22°41.5'		338°38.0'	S 21°22.3'		250°21.8'	N 6°27.8'				
19	291°02.2'	107°14.1'	S 1°38.8'	145°44.1'	N 13°51.1'		1°47.1'	S 22°41.5'		353°40.5'	S 21°22.4'		265°24.8'	N 6°27.7'				
20	306°04.7'	122°14.3'	S 1°39.8'	160°43.7'	N 13°50.3'		16°49.4'	S 22°41.4'		8°42.9'	S 21°22.4'		280°27.8'	N 6°27.5'				
21	321°07.1'	137°14.5'	S 1°40.7'	175°43.3'	N 13°49.5'		31°51.7'	S 22°41.4'		23°45.4'	S 21°22.4'		295°30.9'	N 6°27.4'				
22	336°09.6'	152°14.7'	S 1°41.7'	190°42.9'	N 13°48.7'		46°54.1'	S 22°41.4'		38°47.9'	S 21°22.4'		310°33.9'	N 6°27.3'				
23	351°12.1'	167°15.0'	S 1°42.7'	205°42.5'	N 13°47.9'		61°56.4'	S 22°41.4'		53°50.3'	S 21°22.4'		325°36.9'	N 6°27.2'				
		SD 15.9'	d -1.0'		v -0.4' d -0.8'			v 2.3' d 0.0'			v 2.5' d -0.0'			v 3.0' d -0.1'				
Mer. pass.		11 h 51 m 10 s			9 h 17 m			18 h 53 m			19 h 25 m			1 h 22 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Mars	-Achernar	-Fomalhaut	+Saturn	+Jupiter	+Antares	+Sun
0	65°55.9'	S 23°29.5'	8.7'	4.0'	56.5'		89°22.6'	67°56.4'	40°47.9'		9°19.8'	46°36.7'	113°19.7'
1	80°23.6'	S 23°25.5'	8.7'	4.1'	56.4'		88°49.9'	67°41.0'	40°18.9'		9°51.5'	47°08.6'	113°49.3'
2	94°51.3'	S 23°21.4'	8.8'	4.2'	56.4'		88°17.2'	67°25.7'	39°50.0'		10°23.1'	47°40.4'	114°18.8'
3	109°19.1'	S 23°17.2'	8.9'	4.4'	56.4'		87°44.5'	67°10.6'	39°21.2'		10°54.8'	48°12.3'	114°48.4'
4	123°46.9'	S 23°12.8'	8.9'	4.5'	56.3'		87°11.8'		38°52.5'		11°26.4'	48°44.1'	115°17.9'
5	138°14.9'	S 23°08.3'	9.0'	4.6'	56.3'		86°39.2'		38°23.9'		11°58.1'	49°15.9'	115°47.4'
6	152°42.9'	S 23°03.7'	9.1'	4.7'	56.3'		86°06.6'		37°55.4'	5°17.8'	12°29.7'	49°47.6'	116°16.8'
7	167°10.9'	S 22°59.0'	9.1'	4.9'	56.3'		85°34.1'		37°27.0'	5°46.9'	13°01.4'	50°19.3'	116°46.2'
8	181°39.1'	S 22°54.1'	9.2'	5.0'	56.2'		85°01.5'		36°58.7'	6°16.4'	13°33.0'	50°51.1'	117°15.6'
9	196°07.3'	S 22°49.1'	9.3'	5.1'	56.2'		84°29.0'		36°30.5'	6°46.3'	14°04.6'	51°22.7'	117°44.9'
10	210°35.6'	S 22°44.1'	9.4'	5.2'	56.2'		83°56.5'		36°02.5'	7°16.4'	14°36.3'	51°54.4'	118°14.3'
11	225°03.9'	S 22°38.9'	9.4'	5.3'	56.2'		83°24.1'		35°34.5'	7°46.8'	15°07.9'	52°26.0'	118°43.6'
12	239°32.3'	S 22°33.5'	9.5'	5.4'	56.1'		82°51.7'		35°06.7'	8°17.3'	15°39.4'	52°57.7'	119°12.8'
13	254°00.8'	S 22°28.1'	9.6'	5.5'	56.1'		82°19.3'		34°39.0'	8°48.0'	16°11.0'	53°29.3'	119°42.1'
14	268°29.4'	S 22°22.5'	9.6'	5.7'	56.1'		81°46.9'		34°11.4'	9°18.7'	16°42.6'	54°00.8'	
15	282°58.1'	S 22°16.9'	9.7'	5.8'	56.1'		81°14.5'		33°44.0'	9°49.6'	17°14.1'	54°32.4'	
16	297°26.8'	S 22°11.1'	9.8'	5.9'	56.0'		80°42.2'		33°16.7'	10°20.5'	17°45.6'	55°03.9'	
17	311°55.6'	S 22°05.2'	9.9'	6.0'	56.0'		80°09.9'		32°49.6'	10°51.4'	18°17.1'	55°35.4'	
18	326°24.4'	S 21°59.2'	9.9'	6.1'	56.0'		79°37.6'		32°22.5'	11°22.5'	18°48.6'	56°06.9'	
19	340°53.4'	S 21°53.1'	10.0'	6.2'	56.0'		79°05.4'		31°55.7'	11°53.5'	19°20.1'	56°38.3'	
20	355°22.4'	S 21°46.9'	10.1'	6.3'	55.9'		78°33.1'		31°29.0'	12°24.6'	19°51.5'	57°09.8'	
21	9°51.5'	S 21°40.6'	10.2'	6.4'	55.9'		78°00.9'		31°02.4'	12°55.7'	20°22.9'	57°41.2'	
22	24°20.7'	S 21°34.2'	10.2'	6.5'	55.9'		77°28.8'		30°36.1'	13°26.8'	20°54.3'	58°12.6'	
23	38°49.9'	S 21°27.7'	10.3'	6.6'	55.9'	119°44.5'	76°56.6'		30°09.8'	13°57.9'	21°25.7'	58°43.9'	
Mer. pass.		20 h 19 m SD 15.4'			phase 70%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	N 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°15.4'	N 89°20.8'
Rigel Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.6'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.8'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°53.9'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	6°14.5'	182°15.2'	S 1°43.7'	220°42.1'	N 13°47.1'	76°58.8'	S 22°41.4'	68°52.8'	S 21°22.4'	340°40.0'	N 6°27.1'	
1	21°17.0'	197°15.4'	S 1°44.6'	235°41.7'	N 13°46.4'	92°01.1'	S 22°41.4'	83°55.3'	S 21°22.4'	355°43.0'	N 6°26.9'	
2	36°19.5'	212°15.6'	S 1°45.6'	250°41.3'	N 13°45.6'	107°03.5'	S 22°41.4'	98°57.8'	S 21°22.4'	10°46.1'	N 6°26.8'	
3	51°21.9'	227°15.8'	S 1°46.6'	265°40.9'	N 13°44.8'	122°05.8'	S 22°41.3'	114°00.2'	S 21°22.4'	25°49.1'	N 6°26.7'	
4	66°24.4'	242°16.0'	S 1°47.6'	280°40.5'	N 13°44.0'	137°08.2'	S 22°41.3'	129°02.7'	S 21°22.4'	40°52.2'	N 6°26.6'	
5	81°26.9'	257°16.2'	S 1°48.5'	295°40.1'	N 13°43.2'	152°10.5'	S 22°41.3'	144°05.2'	S 21°22.4'	55°55.2'	N 6°26.4'	
6	96°29.3'	272°16.4'	S 1°49.5'	310°39.8'	N 13°42.4'	167°12.8'	S 22°41.3'	159°07.7'	S 21°22.4'	70°58.3'	N 6°26.3'	
7	111°31.8'	287°16.7'	S 1°50.5'	325°39.4'	N 13°41.6'	182°15.2'	S 22°41.3'	174°10.1'	S 21°22.4'	86°01.3'	N 6°26.2'	
8	126°34.2'	302°16.9'	S 1°51.4'	340°39.0'	N 13°40.8'	197°17.5'	S 22°41.3'	189°12.6'	S 21°22.4'	101°04.4'	N 6°26.1'	
9	141°36.7'	317°17.1'	S 1°52.4'	355°38.6'	N 13°40.0'	212°19.9'	S 22°41.3'	204°15.1'	S 21°22.4'	116°07.4'	N 6°25.9'	
10	156°39.2'	332°17.3'	S 1°53.4'	10°38.2'	N 13°39.2'	227°22.2'	S 22°41.3'	219°17.5'	S 21°22.4'	131°10.5'	N 6°25.8'	
11	171°41.6'	347°17.5'	S 1°54.4'	25°37.8'	N 13°38.4'	242°24.5'	S 22°41.2'	234°20.0'	S 21°22.4'	146°13.5'	N 6°25.7'	
12	186°44.1'	2°17.7'	S 1°55.3'	40°37.4'	N 13°37.6'	257°26.9'	S 22°41.2'	249°22.5'	S 21°22.4'	161°16.6'	N 6°25.6'	
13	201°46.6'	17°17.9'	S 1°56.3'	55°37.0'	N 13°36.8'	272°29.2'	S 22°41.2'	264°25.0'	S 21°22.4'	176°19.6'	N 6°25.4'	
14	216°49.0'	32°18.1'	S 1°57.3'	70°36.6'	N 13°36.0'	287°31.6'	S 22°41.2'	279°27.4'	S 21°22.4'	191°22.7'	N 6°25.3'	
15	231°51.5'	47°18.3'	S 1°58.3'	85°36.2'	N 13°35.2'	302°33.9'	S 22°41.2'	294°29.9'	S 21°22.4'	206°25.7'	N 6°25.2'	
16	246°54.0'	62°18.6'	S 1°59.2'	100°35.9'	N 13°34.4'	317°36.2'	S 22°41.2'	309°32.4'	S 21°22.4'	221°28.8'	N 6°25.1'	
17	261°56.4'	77°18.8'	S 2°00.2'	115°35.5'	N 13°33.6'	332°38.6'	S 22°41.2'	324°34.8'	S 21°22.4'	236°31.9'	N 6°24.9'	
18	276°58.9'	92°19.0'	S 2°01.2'	130°35.1'	N 13°32.8'	347°40.9'	S 22°41.1'	339°37.3'	S 21°22.4'	251°34.9'	N 6°24.8'	
19	292°01.4'	107°19.2'	S 2°02.1'	145°34.7'	N 13°32.0'	2°43.2'	S 22°41.1'	354°39.8'	S 21°22.4'	266°38.0'	N 6°24.7'	
20	307°03.8'	122°19.4'	S 2°03.1'	160°34.3'	N 13°31.2'	17°45.6'	S 22°41.1'	9°42.2'	S 21°22.4'	281°41.0'	N 6°24.5'	
21	322°06.3'	137°19.6'	S 2°04.1'	175°33.9'	N 13°30.4'	32°47.9'	S 22°41.1'	24°44.7'	S 21°22.4'	296°44.1'	N 6°24.4'	
22	337°08.7'	152°19.8'	S 2°05.1'	190°33.5'	N 13°29.6'	47°50.3'	S 22°41.1'	39°47.2'	S 21°22.4'	311°47.2'	N 6°24.3'	
23	352°11.2'	167°20.0'	S 2°06.0'	205°33.1'	N 13°28.8'	62°52.6'	S 22°41.1'	54°49.7'	S 21°22.5'	326°50.2'	N 6°24.2'	
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.3'	d 0.0'	v 2.5'	d -0.0'	v 3.1'	d -0.1'	
Mer. pass.		11 h 50 m 50 s		9 h 17 m		18 h 49 m		19 h 21 m		1 h 17 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Aldebaran	-Rigel	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	53°19.3'	S 21°21.0'	10.4'	6.7'	55.8'		119°18.8'	76°24.5'	29°43.8'	14°29.1'	21°57.0'		59°15.3'
1	67°48.7'	S 21°14.3'	10.5'	6.8'	55.8'	119°28.7'	118°53.1'	75°52.4'	29°18.0'	15°00.2'	22°28.4'		59°46.6'
2	82°18.1'	S 21°07.4'	10.6'	6.9'	55.8'	118°57.3'	118°27.4'	75°20.3'	28°52.3'	15°31.4'	22°59.7'		60°17.9'
3	96°47.7'	S 21°00.5'	10.6'	7.0'	55.8'	118°25.9'	118°01.6'	74°48.2'	28°26.9'	16°02.5'	23°31.0'		60°49.2'
4	111°17.3'	S 20°53.5'	10.7'	7.1'	55.7'	117°54.6'	117°35.8'	74°16.2'	28°01.6'	16°33.6'	24°02.3'		61°20.4'
5	125°47.0'	S 20°46.3'	10.8'	7.2'	55.7'	117°23.3'	117°09.9'	73°44.1'	27°36.6'	17°04.8'	24°33.5'		61°51.6'
6	140°16.8'	S 20°39.1'	10.9'	7.3'	55.7'	116°52.0'	116°44.1'	73°12.2'	27°11.8'	17°35.9'	25°04.8'		62°22.9'
7	154°46.7'	S 20°31.8'	10.9'	7.4'	55.7'	116°20.7'	116°18.2'	72°40.2'	26°47.2'	18°07.0'	25°36.0'		62°54.0'
8	169°16.6'	S 20°24.3'	11.0'	7.5'	55.6'	115°49.4'	115°52.3'	72°08.2'	26°22.9'	18°38.2'	26°07.2'		63°25.2'
9	183°46.6'	S 20°16.8'	11.1'	7.6'	55.6'	115°18.2'	115°26.3'	71°36.3'	25°58.8'	19°09.3'	26°38.3'		63°56.4'
10	198°16.7'	S 20°09.2'	11.2'	7.7'	55.6'	114°47.0'	115°00.4'	71°04.4'	25°35.0'	19°40.4'	27°09.5'		64°27.5'
11	212°46.9'	S 20°01.5'	11.2'	7.8'	55.6'	114°15.8'	114°34.4'	70°32.5'	25°11.4'	20°11.4'	27°40.6'		64°58.6'
12	227°17.1'	S 19°53.7'	11.3'	7.9'	55.6'	113°44.6'	114°08.4'	70°00.7'	24°48.1'	20°42.5'	28°11.7'		65°29.7'
13	241°47.4'	S 19°45.8'	11.4'	8.0'	55.5'	113°13.5'	113°42.4'	69°28.8'	24°25.2'	21°13.6'	28°42.8'		66°00.7'
14	256°17.8'	S 19°37.8'	11.5'	8.1'	55.5'	112°42.3'	113°16.3'	68°57.0'	24°02.5'	21°44.6'	29°13.8'		66°31.8'
15	270°48.3'	S 19°29.7'	11.5'	8.2'	55.5'	112°11.2'	112°50.3'	68°25.2'	23°40.1'	22°15.7'	29°44.9'		67°02.8'
16	285°18.8'	S 19°21.5'	11.6'	8.3'	55.5'	111°40.1'	112°24.2'	67°53.4'	23°18.1'	22°46.7'	30°15.9'		67°33.8'
17	299°49.5'	S 19°13.3'	11.7'	8.3'	55.4'	111°09.1'	111°58.1'	67°21.7'	22°56.5'	23°17.7'	30°46.9'		68°04.8'
18	314°20.2'	S 19°05.0'	11.8'	8.4'	55.4'	110°38.0'	111°32.0'	66°49.9'	22°35.2'	23°48.7'	31°17.9'		68°35.8'
19	328°50.9'	S 18°56.5'	11.8'	8.5'	55.4'	110°07.0'	111°05.8'	66°18.2'	22°14.3'	24°19.6'	31°48.9'		69°06.7'
20	343°21.8'	S 18°48.0'	11.9'	8.6'	55.4'	109°36.0'	110°39.7'	65°46.5'	21°53.8'	24°50.6'	32°19.8'	37°36.0'	69°37.6'
21	357°52.7'	S 18°39.4'	12.0'	8.7'	55.4'	109°05.0'	110°13.5'	65°14.8'	21°33.7'	25°21.6'	32°50.7'	37°51.1'	70°08.5'
22	12°23.7'	S 18°30.8'	12.1'	8.8'	55.3'	108°34.0'	109°47.4'	64°43.2'	21°14.0'	25°52.5'	33°21.6'	38°06.5'	70°39.4'
23	26°54.8'	S 18°22.0'	12.1'	8.8'	55.3'	108°03.1'	109°21.2'	64°11.5'	20°54.8'	26°23.4'	33°52.5'	38°22.1'	71°10.3'
Mer. pass.		21 h 9 m SD 15.2'	phase 79%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.8'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.5'	N 16°33.0'
Antares	+1.1	112°20.2'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°15.0'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.6'	S 28°59.8'	Achernar	+0.5	335°22.4'	S 57°07.9'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	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
0	7°13.7'	182°20.2'	S 2°07.0'	220°32.7'	N 13°28.0'	77°54.9'	S 22°41.1'	69°52.1'	S 21°22.5'	341°53.3'	N 6°24.0'
1	22°16.1'	197°20.5'	S 2°08.0'	235°32.4'	N 13°27.2'	92°57.3'	S 22°41.0'	84°54.6'	S 21°22.5'	356°56.4'	N 6°23.9'
2	37°18.6'	212°20.7'	S 2°08.9'	250°32.0'	N 13°26.4'	107°59.6'	S 22°41.0'	99°57.1'	S 21°22.5'	11°59.4'	N 6°23.8'
3	52°21.1'	227°20.9'	S 2°09.9'	265°31.6'	N 13°25.6'	123°01.9'	S 22°41.0'	114°59.5'	S 21°22.5'	27°02.5'	N 6°23.6'
4	67°23.5'	242°21.1'	S 2°10.9'	280°31.2'	N 13°24.8'	138°04.3'	S 22°41.0'	130°02.0'	S 21°22.5'	42°05.6'	N 6°23.5'
5	82°26.0'	257°21.3'	S 2°11.9'	295°30.8'	N 13°24.0'	153°06.6'	S 22°41.0'	145°04.5'	S 21°22.5'	57°08.7'	N 6°23.4'
6	97°28.5'	272°21.5'	S 2°12.8'	310°30.4'	N 13°23.2'	168°08.9'	S 22°41.0'	160°06.9'	S 21°22.5'	72°11.7'	N 6°23.3'
7	112°30.9'	287°21.7'	S 2°13.8'	325°30.0'	N 13°22.4'	183°11.3'	S 22°41.0'	175°09.4'	S 21°22.5'	87°14.8'	N 6°23.1'
8	127°33.4'	302°21.9'	S 2°14.8'	340°29.6'	N 13°21.6'	198°13.6'	S 22°40.9'	190°11.9'	S 21°22.5'	102°17.9'	N 6°23.0'
9	142°35.8'	317°22.1'	S 2°15.8'	355°29.3'	N 13°20.7'	213°15.9'	S 22°40.9'	205°14.3'	S 21°22.5'	117°21.0'	N 6°22.9'
10	157°38.3'	332°22.3'	S 2°16.7'	10°28.9'	N 13°19.9'	228°18.3'	S 22°40.9'	220°16.8'	S 21°22.5'	132°24.0'	N 6°22.7'
11	172°40.8'	347°22.5'	S 2°17.7'	25°28.5'	N 13°19.1'	243°20.9'	S 22°40.9'	235°19.3'	S 21°22.5'	147°27.1'	N 6°22.6'
12	187°43.2'	2°22.8'	S 2°18.7'	40°28.1'	N 13°18.3'	258°22.9'	S 22°40.9'	250°21.7'	S 21°22.5'	162°30.2'	N 6°22.5'
13	202°45.7'	17°23.0'	S 2°19.6'	55°27.7'	N 13°17.5'	273°25.3'	S 22°40.9'	265°24.2'	S 21°22.5'	177°33.3'	N 6°22.3'
14	217°48.2'	32°23.2'	S 2°20.6'	70°27.3'	N 13°16.7'	288°27.6'	S 22°40.9'	280°26.7'	S 21°22.5'	192°36.4'	N 6°22.2'
15	232°50.6'	47°23.4'	S 2°21.6'	85°26.9'	N 13°15.9'	303°29.9'	S 22°40.8'	295°29.1'	S 21°22.5'	207°39.4'	N 6°22.1'
16	247°53.1'	62°23.6'	S 2°22.6'	100°26.5'	N 13°15.0'	318°32.3'	S 22°40.8'	310°31.6'	S 21°22.5'	222°42.5'	N 6°21.9'
17	262°55.6'	77°23.8'	S 2°23.5'	115°26.2'	N 13°14.2'	333°34.6'	S 22°40.8'	325°34.1'	S 21°22.5'	237°45.6'	N 6°21.8'
18	277°58.0'	92°24.0'	S 2°24.5'	130°25.8'	N 13°13.4'	348°36.9'	S 22°40.8'	340°36.5'	S 21°22.5'	252°48.7'	N 6°21.7'
19	293°00.5'	107°24.2'	S 2°25.5'	145°25.4'	N 13°12.6'	3°39.2'	S 22°40.8'	355°39.0'	S 21°22.5'	267°51.8'	N 6°21.5'
20	308°03.0'	122°24.4'	S 2°26.4'	160°25.0'	N 13°11.8'	18°41.6'	S 22°40.8'	10°41.5'	S 21°22.5'	282°54.9'	N 6°21.4'
21	323°05.4'	137°24.6'	S 2°27.4'	175°24.6'	N 13°11.0'	33°43.9'	S 22°40.8'	25°43.9'	S 21°22.5'	297°58.0'	N 6°21.3'
22	338°07.9'	152°24.8'	S 2°28.4'	190°24.2'	N 13°10.1'	48°46.2'	S 22°40.7'	40°46.4'	S 21°22.5'	313°01.1'	N 6°21.1'
23	353°10.3'	167°25.1'	S 2°29.4'	205°23.8'	N 13°09.3'	63°48.6'	S 22°40.7'	55°48.9'	S 21°22.5'	328°04.1'	N 6°21.0'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.3'	d 0.0'	v 2.5'	d -0.0'	v 3.1'	d -0.1'
Mer. pass.		11 h 50 m 30 s		9 h 18 m		18 h 45 m		19 h 17 m		1 h 12 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Fomalhaut	+Saturn	+Jupiter	+Altair	+Antares
0	41°25.9'	S 18°13.2'	12.2'	8.9'	55.3'	108°55.0'	107°32.2'	63°39.9'	20°36.0'	26°54.3'	34°23.4'	38°38.0'	71°41.2'
1	55°57.1'	S 18°04.3'	12.3'	9.0'	55.3'	108°28.8'	107°01.2'	63°08.3'	20°17.8'	27°25.2'	34°54.2'	38°54.1'	72°12.0'
2	70°28.4'	S 17°55.3'	12.4'	9.1'	55.3'	108°02.6'	106°30.4'	62°36.7'	20°00.0'	27°56.1'	35°25.0'	39°10.4'	72°42.8'
3	84°59.8'	S 17°46.2'	12.4'	9.1'	55.2'	107°36.4'	105°59.5'	62°05.1'	19°42.8'	28°26.9'	35°55.9'	39°27.0'	73°13.6'
4	99°31.2'	S 17°37.1'	12.5'	9.2'	55.2'	107°10.1'	105°28.6'	61°33.6'	19°26.2'	28°57.7'	36°26.6'	39°43.8'	73°44.4'
5	114°02.7'	S 17°27.9'	12.6'	9.3'	55.2'	106°43.9'	104°57.8'	61°02.1'	19°10.1'	29°28.6'	36°57.4'	40°00.9'	74°15.1'
6	128°34.3'	S 17°18.6'	12.7'	9.4'	55.2'	106°17.6'	104°27.0'	60°30.6'		29°59.4'	37°28.2'	40°18.1'	74°45.9'
7	143°05.9'	S 17°09.2'	12.7'	9.4'	55.2'	105°51.4'	103°56.2'	59°59.1'		30°30.2'	37°58.9'	40°35.6'	75°16.6'
8	157°37.7'	S 16°59.8'	12.8'	9.5'	55.1'	105°25.1'	103°25.4'	59°27.6'		31°00.9'	38°29.6'	40°53.3'	75°47.3'
9	172°09.5'	S 16°50.3'	12.9'	9.6'	55.1'	104°58.9'	102°54.7'	58°56.1'		31°31.7'	39°00.3'	41°11.2'	76°18.0'
10	186°41.3'	S 16°40.7'	12.9'	9.6'	55.1'	104°32.6'	102°23.9'	58°24.7'		32°02.4'	39°31.0'	41°29.3'	76°48.6'
11	201°13.2'	S 16°31.0'	13.0'	9.7'	55.1'	104°06.3'	101°53.2'	57°53.3'		32°33.2'	40°01.6'	41°47.5'	77°19.3'
12	215°45.2'	S 16°21.3'	13.1'	9.8'	55.1'	103°40.1'	101°22.5'	57°21.9'		33°03.9'	40°32.3'	42°06.0'	77°49.9'
13	230°17.3'	S 16°11.5'	13.1'	9.9'	55.1'	103°13.8'	100°51.8'	56°50.5'		33°34.6'	41°02.9'	42°24.6'	78°20.5'
14	244°49.5'	S 16°01.7'	13.2'	9.9'	55.0'	102°47.5'	100°21.2'	56°19.1'		34°05.2'	41°33.5'	42°43.5'	78°51.1'
15	259°21.7'	S 15°51.8'	13.3'	10.0'	55.0'	102°21.2'	99°50.5'	55°47.8'		34°35.9'	42°04.1'	43°02.5'	79°21.7'
16	273°53.9'	S 15°41.8'	13.3'	10.0'	55.0'	101°55.0'	99°19.9'	55°16.4'		35°06.5'	42°34.7'	43°21.6'	79°52.3'
17	288°26.3'	S 15°31.7'	13.4'	10.1'	55.0'	101°28.7'	98°49.3'	54°45.1'		35°37.2'	43°05.2'	43°40.9'	80°22.8'
18	302°58.7'	S 15°21.6'	13.5'	10.2'	55.0'	101°02.4'	98°18.7'	54°13.8'		36°07.8'	43°35.7'	44°00.4'	80°53.3'
19	317°31.1'	S 15°11.5'	13.5'	10.2'	54.9'	100°36.1'	97°48.1'	53°42.5'		36°38.4'	44°06.3'	44°20.1'	81°23.8'
20	332°03.7'	S 15°01.2'	13.6'	10.3'	54.9'	100°09.8'	97°17.5'	53°11.3'		37°09.0'	44°36.8'	44°39.9'	81°54.3'
21	346°36.3'	S 14°50.9'	13.7'	10.3'	54.9'	99°43.6'	96°47.0'	52°40.0'		37°39.5'	45°07.3'	44°59.8'	82°24.8'
22	1°08.9'	S 14°40.6'	13.7'	10.4'	54.9'	99°17.3'	96°16.4'	52°08.8'		38°10.1'	45°37.7'	45°19.9'	82°55.3'
23	15°41.7'	S 14°30.2'	13.8'	10.5'	54.9'	98°51.0'	95°45.9'	51°37.5'		38°40.6'	46°08.2'	45°40.2'	83°25.7'
Mer. pass.		21 h 55 m SD 15.1'	phase 86%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°20.3'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°14.7'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.6'	S 28°59.8'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°53.9'	S 52°42.1'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	8°12.8'	S 2°30.3'	182°25.3'	S 2°30.3'	220°23.4'	N 13°08.5'	78°50.9'	S 22°40.7'	70°51.3'	S 21°22.5'	343°07.2'	N 6°20.9'
1	23°15.3'	S 2°31.3'	197°25.5'	S 2°31.3'	235°23.1'	N 13°07.7'	93°53.2'	S 22°40.7'	85°53.8'	S 21°22.5'	358°10.3'	N 6°20.7'
2	38°17.7'	S 2°32.3'	212°25.7'	S 2°32.3'	250°22.7'	N 13°06.8'	108°55.5'	S 22°40.7'	100°56.3'	S 21°22.5'	13°13.4'	N 6°20.6'
3	53°20.2'	S 2°33.2'	227°25.9'	S 2°33.2'	265°22.3'	N 13°06.0'	123°57.9'	S 22°40.7'	115°58.7'	S 21°22.5'	28°16.5'	N 6°20.5'
4	68°22.7'	S 2°34.2'	242°26.1'	S 2°34.2'	280°21.9'	N 13°05.2'	139°00.2'	S 22°40.6'	131°01.2'	S 21°22.5'	43°19.6'	N 6°20.3'
5	83°25.1'	S 2°35.2'	257°26.3'	S 2°35.2'	295°21.5'	N 13°04.4'	154°02.5'	S 22°40.6'	146°03.6'	S 21°22.5'	58°22.7'	N 6°20.2'
6	98°27.6'	S 2°36.2'	272°26.5'	S 2°36.2'	310°21.1'	N 13°03.5'	169°04.8'	S 22°40.6'	161°06.1'	S 21°22.5'	73°25.8'	N 6°20.1'
7	113°30.1'	S 2°37.1'	287°26.7'	S 2°37.1'	325°20.7'	N 13°02.7'	184°07.2'	S 22°40.6'	176°08.6'	S 21°22.5'	88°28.9'	N 6°19.9'
8	128°32.5'	S 2°38.1'	302°26.9'	S 2°38.1'	340°20.4'	N 13°01.9'	199°09.5'	S 22°40.6'	191°11.0'	S 21°22.5'	103°32.0'	N 6°19.8'
9	143°35.0'	S 2°39.1'	317°27.1'	S 2°39.1'	355°20.0'	N 13°01.1'	214°11.8'	S 22°40.6'	206°13.5'	S 21°22.5'	118°35.1'	N 6°19.7'
10	158°37.4'	S 2°40.0'	332°27.3'	S 2°40.0'	10°19.6'	N 13°00.2'	229°14.1'	S 22°40.6'	221°16.0'	S 21°22.5'	133°38.2'	N 6°19.5'
11	173°39.9'	S 2°41.0'	347°27.5'	S 2°41.0'	25°19.2'	N 12°59.4'	244°16.5'	S 22°40.5'	236°18.4'	S 21°22.5'	148°41.3'	N 6°19.4'
12	188°42.4'	S 2°42.0'	2°27.7'	S 2°42.0'	40°18.8'	N 12°58.6'	259°18.8'	S 22°40.5'	251°20.9'	S 21°22.5'	163°44.4'	N 6°19.3'
13	203°44.8'	S 2°42.9'	17°28.0'	S 2°42.9'	55°18.4'	N 12°57.7'	274°21.1'	S 22°40.5'	266°23.4'	S 21°22.5'	178°47.5'	N 6°19.1'
14	218°47.3'	S 2°43.9'	32°28.2'	S 2°43.9'	70°18.1'	N 12°56.9'	289°23.4'	S 22°40.5'	281°25.8'	S 21°22.5'	193°50.6'	N 6°19.0'
15	233°49.8'	S 2°44.9'	47°28.4'	S 2°44.9'	85°17.7'	N 12°56.1'	304°25.8'	S 22°40.5'	296°28.3'	S 21°22.5'	208°53.7'	N 6°18.9'
16	248°52.2'	S 2°45.9'	62°28.6'	S 2°45.9'	100°17.3'	N 12°55.2'	319°28.1'	S 22°40.5'	311°30.7'	S 21°22.6'	223°56.8'	N 6°18.7'
17	263°54.7'	S 2°46.8'	77°28.0'	S 2°46.8'	115°16.9'	N 12°54.4'	334°30.4'	S 22°40.4'	326°33.2'	S 21°22.6'	238°60.0'	N 6°18.6'
18	278°57.2'	S 2°47.8'	92°29.0'	S 2°47.8'	130°16.5'	N 12°53.6'	349°32.7'	S 22°40.4'	341°35.7'	S 21°22.6'	254°03.1'	N 6°18.4'
19	293°59.6'	S 2°48.8'	107°29.2'	S 2°48.8'	145°16.1'	N 12°52.7'	4°35.0'	S 22°40.4'	356°38.1'	S 21°22.6'	269°06.2'	N 6°18.3'
20	309°02.1'	S 2°49.7'	122°29.4'	S 2°49.7'	160°15.7'	N 12°51.9'	19°37.4'	S 22°40.4'	11°40.6'	S 21°22.6'	284°09.3'	N 6°18.2'
21	324°04.6'	S 2°50.7'	137°29.6'	S 2°50.7'	175°15.4'	N 12°51.1'	34°39.7'	S 22°40.4'	26°43.0'	S 21°22.6'	299°12.4'	N 6°18.0'
22	339°07.0'	S 2°51.7'	152°29.8'	S 2°51.7'	190°15.0'	N 12°50.2'	49°42.0'	S 22°40.4'	41°45.5'	S 21°22.6'	314°15.5'	N 6°17.9'
23	354°09.5'	S 2°52.7'	167°30.0'	S 2°52.7'	205°14.6'	N 12°49.4'	64°44.3'	S 22°40.3'	56°48.0'	S 21°22.6'	329°18.6'	N 6°17.8'
		SD 16.0' d -1.0'		v -0.4' d -0.8'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 3.1' d -0.1'		
Mer. pass.		11 h 50 m 10 s		9 h 19 m		18 h 42 m		19 h 13 m		1 h 7 m		

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigel	-Aldebaran	-Mars	-Fomalhaut	+Saturn	+Altair	+Jupiter	+Antares
0	30°14.4'	S 14°19.7'	13.9'	10.5'	54.9'	98°24.8'	95°15.4'	51°06.3'		39°11.2'	46°00.6'	46°38.6'	83°56.2'
1	44°47.3'	S 14°09.2'	13.9'	10.6'	54.8'	97°58.5'	94°44.9'	50°35.1'		39°41.7'	46°21.1'	47°09.0'	84°26.6'
2	59°20.2'	S 13°58.6'	14.0'	10.6'	54.8'	97°32.2'	94°14.5'	50°04.0'		40°12.2'	46°41.7'	47°39.4'	84°57.0'
3	73°53.2'	S 13°48.0'	14.0'	10.7'	54.8'	97°06.0'	93°44.0'	49°32.8'		40°42.6'	47°02.5'	48°09.8'	85°27.4'
4	88°26.2'	S 13°37.3'	14.1'	10.7'	54.8'	96°39.7'	93°13.6'	49°01.6'		41°13.1'	47°23.4'	48°40.2'	85°57.7'
5	102°59.3'	S 13°26.6'	14.2'	10.8'	54.8'	96°13.5'	92°43.1'	48°30.5'		41°43.5'	47°44.4'	49°10.6'	86°28.1'
6	117°32.5'	S 13°15.8'	14.2'	10.8'	54.8'	95°47.2'	92°12.7'	47°59.4'		42°14.0'	48°05.5'	49°40.9'	86°58.4'
7	132°05.7'	S 13°05.0'	14.3'	10.9'	54.8'	95°21.0'	91°42.3'	47°28.3'		42°44.4'	48°26.7'	50°11.2'	87°28.8'
8	146°38.9'	S 12°54.1'	14.3'	10.9'	54.7'	94°54.8'	91°12.0'	46°57.2'		43°14.8'	48°48.1'	50°41.5'	87°59.1'
9	161°12.3'	S 12°43.1'	14.4'	11.0'	54.7'	94°28.5'	90°41.6'	46°26.1'		43°45.2'	49°09.6'	51°11.8'	88°29.4'
10	175°45.6'	S 12°32.2'	14.4'	11.0'	54.7'	94°02.3'	90°11.3'	45°55.0'		44°15.6'	49°31.1'	51°42.1'	88°59.6'
11	190°19.1'	S 12°21.1'	14.5'	11.1'	54.7'	93°36.1'	89°40.9'	45°24.0'		44°45.9'	49°52.8'	52°12.4'	89°29.9'
12	204°52.6'	S 12°10.0'	14.5'	11.1'	54.7'	93°09.9'	89°10.6'	44°53.0'		45°16.3'	50°14.6'	52°42.6'	90°00.2'
13	219°26.1'	S 11°58.9'	14.6'	11.2'	54.7'	92°43.7'	88°40.3'	44°21.9'		45°46.6'	50°36.5'	53°12.9'	90°30.4'
14	233°59.7'	S 11°47.8'	14.7'	11.2'	54.6'	92°17.6'	88°10.0'	43°50.9'		46°17.0'	50°58.4'	53°43.1'	91°00.6'
15	248°33.4'	S 11°36.6'	14.7'	11.3'	54.6'	91°51.4'	87°39.7'	43°19.9'		46°47.3'	51°20.5'	54°13.3'	91°30.8'
16	263°07.1'	S 11°25.3'	14.8'	11.3'	54.6'	91°25.2'	87°09.5'	42°48.9'		47°17.6'	51°42.6'	54°43.5'	92°01.0'
17	277°40.8'	S 11°14.0'	14.8'	11.3'	54.6'	90°59.1'	86°39.2'	42°18.0'		47°47.9'	52°04.9'	55°13.7'	92°31.2'
18	292°14.6'	S 11°02.7'	14.9'	11.4'	54.6'	90°32.9'	86°09.0'	41°47.0'		48°18.1'	52°27.2'	55°43.9'	93°01.4'
19	306°48.5'	S 10°51.3'	14.9'	11.4'	54.6'	90°06.8'	85°38.8'	41°16.1'		48°48.4'	52°49.6'	56°14.0'	93°31.5'
20	321°22.4'	S 10°39.9'	15.0'	11.5'	54.6'	89°40.7'	85°08.6'	40°45.1'	19°03.0'	49°18.6'	53°12.1'	56°44.2'	94°01.7'
21	335°56.3'	S 10°28.4'	15.0'	11.5'	54.5'	89°14.6'	84°38.4'	40°14.2'	19°18.5'	49°48.9'	53°34.7'	57°14.3'	94°31.8'
22	350°30.3'	S 10°16.9'	15.0'	11.5'	54.5'	88°48.5'	84°08.2'	39°43.3'	19°34.5'	50°19.1'	53°57.3'	57°44.4'	95°01.9'
23	5°04.4'	S 10°05.4'	15.1'	11.6'	54.5'	88°22.4'	83°38.0'	39°12.4'	19°51.0'	50°49.3'	54°20.0'	58°14.5'	95°32.0'
Mer. pass.		22 h 39 m SD 15.0'		phase 92%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.7'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.5'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°20.3'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°14.4'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.6'	S 28°59.8'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	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
0	9°11.9'	182°30.2'	S 2°53.6'	220°14.2'	N 12°48.6'	79°46.6'	S 22°40.3'	71°50.4'	S 21°22.6'	344°21.7'	N 6°17.6'
1	24°14.4'	197°30.4'	S 2°54.6'	235°13.8'	N 12°47.7'	94°49.0'	S 22°40.3'	86°52.9'	S 21°22.6'	359°24.9'	N 6°17.5'
2	39°16.9'	212°30.6'	S 2°55.6'	250°13.4'	N 12°46.9'	109°51.3'	S 22°40.3'	101°55.3'	S 21°22.6'	14°28.0'	N 6°17.3'
3	54°19.3'	227°30.8'	S 2°56.5'	265°13.1'	N 12°46.0'	124°53.6'	S 22°40.3'	116°57.8'	S 21°22.6'	29°31.1'	N 6°17.2'
4	69°21.8'	242°31.0'	S 2°57.5'	280°12.7'	N 12°45.2'	139°55.9'	S 22°40.3'	132°00.3'	S 21°22.6'	44°34.2'	N 6°17.1'
5	84°24.3'	257°31.2'	S 2°58.5'	295°12.3'	N 12°44.4'	154°58.2'	S 22°40.2'	147°02.7'	S 21°22.6'	59°37.3'	N 6°16.9'
6	99°26.7'	272°31.5'	S 2°59.4'	310°11.9'	N 12°43.5'	170°00.5'	S 22°40.2'	162°05.2'	S 21°22.6'	74°40.5'	N 6°16.8'
7	114°29.2'	287°31.7'	S 3°00.4'	325°11.5'	N 12°42.7'	185°02.9'	S 22°40.2'	177°07.6'	S 21°22.6'	89°43.6'	N 6°16.6'
8	129°31.7'	302°31.9'	S 3°01.4'	340°11.1'	N 12°41.8'	200°05.2'	S 22°40.2'	192°10.1'	S 21°22.6'	104°46.7'	N 6°16.5'
9	144°34.1'	317°32.1'	S 3°02.4'	355°10.8'	N 12°41.0'	215°07.5'	S 22°40.2'	207°12.6'	S 21°22.6'	119°49.8'	N 6°16.4'
10	159°36.6'	332°32.3'	S 3°03.3'	10°10.4'	N 12°40.1'	230°09.8'	S 22°40.2'	222°15.0'	S 21°22.6'	134°53.0'	N 6°16.2'
11	174°39.1'	347°32.5'	S 3°04.3'	25°10.0'	N 12°39.3'	245°12.1'	S 22°40.1'	237°17.5'	S 21°22.6'	149°56.1'	N 6°16.1'
12	189°41.5'	2°32.7'	S 3°05.3'	40°09.6'	N 12°38.4'	260°14.4'	S 22°40.1'	252°19.9'	S 21°22.6'	164°59.2'	N 6°15.9'
13	204°44.0'	17°32.9'	S 3°06.2'	55°09.2'	N 12°37.6'	275°16.8'	S 22°40.1'	267°22.4'	S 21°22.6'	180°02.3'	N 6°15.8'
14	219°46.4'	32°33.1'	S 3°07.2'	70°08.8'	N 12°36.7'	290°19.1'	S 22°40.1'	282°24.9'	S 21°22.6'	195°05.5'	N 6°15.7'
15	234°48.9'	47°33.3'	S 3°08.2'	85°08.5'	N 12°35.9'	305°21.4'	S 22°40.1'	297°27.3'	S 21°22.6'	210°08.6'	N 6°15.5'
16	249°51.4'	62°33.5'	S 3°09.1'	100°08.1'	N 12°35.0'	320°23.7'	S 22°40.1'	312°29.8'	S 21°22.6'	225°11.7'	N 6°15.4'
17	264°53.8'	77°33.7'	S 3°10.1'	115°07.7'	N 12°34.2'	335°26.0'	S 22°40.0'	327°32.2'	S 21°22.6'	240°14.9'	N 6°15.2'
18	279°56.3'	92°33.9'	S 3°11.1'	130°07.3'	N 12°33.3'	350°28.3'	S 22°40.0'	342°34.7'	S 21°22.6'	255°18.0'	N 6°15.1'
19	294°58.8'	107°34.1'	S 3°12.0'	145°06.9'	N 12°32.5'	5°30.6'	S 22°40.0'	357°37.1'	S 21°22.6'	270°21.1'	N 6°15.0'
20	310°01.2'	122°34.3'	S 3°13.0'	160°06.6'	N 12°31.6'	20°33.0'	S 22°40.0'	12°39.6'	S 21°22.6'	285°24.3'	N 6°14.8'
21	325°03.7'	137°34.5'	S 3°14.0'	175°06.2'	N 12°30.8'	35°35.3'	S 22°40.0'	27°42.0'	S 21°22.6'	300°27.4'	N 6°14.7'
22	340°06.2'	152°34.7'	S 3°14.9'	190°05.8'	N 12°29.9'	50°37.6'	S 22°40.0'	42°44.5'	S 21°22.6'	315°30.5'	N 6°14.5'
23	355°08.6'	167°34.9'	S 3°15.9'	205°05.4'	N 12°29.1'	65°39.9'	S 22°39.9'	57°47.0'	S 21°22.6'	330°33.7'	N 6°14.4'
		SD 16.0'	d -1.0'	v -0.4'	d -0.8'	v 2.3'	d 0.0'	v 2.5'	d -0.0'	v 3.1'	d -0.1'
Mer. pass.		11 h 49 m 50 s		9 h 19 m		18 h 38 m		19 h 10 m		1 h 2 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Capella	-Rigel	-Aldebaran	-Mars	+Fomalhaut	+Saturn	+Altair	+Jupiter
0	19°38.5'	S 9°53.8'	15.1'	11.6'	54.5'	97°06.0'	87°56.4'	83°07.9'	38°41.5'	20°08.1'	51°19.5'	54°42.8'	58°44.6'
1	34°12.6'	S 9°42.2'	15.2'	11.6'	54.5'	96°38.2'	87°30.3'	82°37.8'	38°10.7'	20°25.6'	51°49.7'	55°05.7'	59°14.7'
2	48°46.8'	S 9°30.6'	15.2'	11.7'	54.5'	96°10.4'	87°04.3'	82°07.6'	37°39.8'	20°43.6'	52°19.8'	55°28.6'	59°44.7'
3	63°21.0'	S 9°18.9'	15.3'	11.7'	54.5'	95°42.6'	86°38.3'	81°37.5'	37°09.0'	21°02.0'	52°50.0'	55°51.6'	60°14.8'
4	77°55.3'	S 9°07.2'	15.3'	11.7'	54.5'	95°14.8'	86°12.3'	81°07.4'	36°38.1'	21°20.9'	53°20.1'	56°14.7'	60°44.8'
5	92°29.6'	S 8°55.5'	15.4'	11.8'	54.4'	94°47.0'	85°46.3'	80°37.3'	36°07.3'	21°40.1'	53°50.3'	56°37.8'	61°14.8'
6	107°04.0'	S 8°43.8'	15.4'	11.8'	54.4'	94°19.2'	85°20.3'	80°07.2'	35°36.5'	21°59.8'	54°20.4'	57°01.0'	61°44.8'
7	121°38.3'	S 8°32.0'	15.4'	11.8'	54.4'	93°51.5'	84°54.3'	79°37.2'	35°05.7'	22°19.8'	54°50.5'	57°24.2'	62°14.8'
8	136°12.8'	S 8°20.1'	15.5'	11.8'	54.4'	93°23.7'	84°28.4'	79°07.1'	34°34.9'	22°40.1'	55°20.6'	57°47.5'	62°44.8'
9	150°47.3'	S 8°08.3'	15.5'	11.9'	54.4'	92°56.0'	84°02.5'	78°37.1'	34°04.1'	23°00.8'	55°50.7'	58°10.9'	63°14.8'
10	165°21.8'	S 7°56.4'	15.6'	11.9'	54.4'	92°28.2'	83°36.5'	78°07.1'	33°33.4'	23°21.8'	56°20.7'	58°34.3'	63°44.8'
11	179°56.3'	S 7°44.5'	15.6'	11.9'	54.4'	92°00.5'	83°10.7'	77°37.1'	33°02.6'	23°43.1'	56°50.8'	58°57.8'	64°14.7'
12	194°30.9'	S 7°32.6'	15.6'	12.0'	54.4'	91°32.8'	82°44.8'	77°07.0'	32°31.9'	24°04.6'	57°20.9'	59°21.3'	64°44.7'
13	209°05.5'	S 7°20.6'	15.7'	12.0'	54.3'	91°05.0'	82°18.9'	76°37.1'	32°01.1'	24°26.5'	57°50.9'	59°44.9'	65°14.6'
14	223°40.2'	S 7°08.6'	15.7'	12.0'	54.3'	90°37.3'	81°53.1'	76°07.1'	31°30.4'	24°48.6'	58°20.9'	60°08.5'	65°44.5'
15	238°14.9'	S 6°56.6'	15.7'	12.0'	54.3'	90°09.6'	81°27.3'	75°37.1'	30°59.7'	25°11.0'	58°51.0'	60°32.2'	66°14.4'
16	252°49.6'	S 6°44.6'	15.8'	12.0'	54.3'	89°42.0'	81°01.5'	75°07.2'	30°29.0'	25°33.6'	59°21.0'	60°55.9'	66°44.3'
17	267°24.4'	S 6°32.6'	15.8'	12.1'	54.3'	89°14.3'	80°35.7'	74°37.2'	29°58.3'	25°56.4'	59°51.0'	61°19.7'	67°14.2'
18	281°59.2'	S 6°20.5'	15.8'	12.1'	54.3'	88°46.6'	80°10.0'	74°07.3'	29°27.6'	26°19.5'	60°20.9'	61°43.5'	67°44.1'
19	296°34.0'	S 6°08.4'	15.9'	12.1'	54.3'	88°19.0'	79°44.2'	73°37.3'	28°56.9'	26°42.7'	60°50.9'	62°07.4'	68°13.9'
20	311°08.9'	S 5°56.3'	15.9'	12.1'	54.3'	87°51.3'	79°18.5'	73°07.4'	28°26.3'	27°06.2'	61°20.9'	62°31.3'	68°43.8'
21	325°43.8'	S 5°44.2'	15.9'	12.1'	54.3'	87°23.7'	78°52.8'	72°37.5'	27°55.6'	27°29.8'	61°50.8'	62°55.2'	69°13.6'
22	340°18.7'	S 5°32.0'	15.9'	12.2'	54.3'	86°56.1'	78°27.2'	72°07.6'	27°25.0'	27°53.6'	62°20.8'	63°19.2'	69°43.4'
23	354°53.6'	S 5°19.9'	16.0'	12.2'	54.2'	86°28.4'	78°01.5'	71°37.8'	26°54.3'	28°17.6'	62°50.7'	63°43.2'	70°13.3'
Mer. pass.		23 h 21 m SD 14.9'	phase 97%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.8'	Spica	+1.0	158°26.3'	S 11°15.9'	Betelgeuse	+0.5	270°55.8'	N 7°24.7'
Deneb	+1.2	49°27.9'	N 45°21.5'	Acrux	+0.8	173°04.5'	S 63°12.6'	Capella	+0.1	280°26.9'	N 46°00.9'
Altair	+0.8	62°03.2'	N 8°55.6'	Regulus	+1.4	207°38.4'	N 11°52.1'	Rigel	+0.2	281°07.1'	S 8°10.6'
Vega	+0.0	80°35.6'	N 38°48.5'	Pollux	+1.2	243°21.7'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°20.3'	S 26°28.6'	Procyon	+0.4	244°54.6'	N 5°10.4'	Polaris	+2.0	315°14.1'	N 89°20.8'
Rigil Kent	-0.0	139°45.5'	S 60°55.2'	Adhara	+1.5	255°08.6'	S 28°59.8'	Achernar	+0.5	335°22.3'	S 57°07.9'
Arcturus	-0.1	145°51.4'	N 19°04.8'	Sirius	-1.4	258°29.3'	S 16°44.5'				
Hadar	+0.6	148°41.4'	S 60°28.3'	Canopus	-0.6	263°53.9'	S 52°42.1'				