

h	Aries			Sun			Venus		Jupiter		Saturn		Mars		
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec		
0	219°08.5'	180°43.1'	N 15°04.7'	171°26.4'	N 17°25.1'	248°21.8'	S 12°44.8'	263°23.7'	S 17°26.2'	124°07.3'	N 24°48.3'				
1	234°11.0'	195°43.2'	N 15°05.5'	186°25.8'	N 17°26.0'	263°23.9'	S 12°44.7'	278°26.0'	S 17°26.2'	139°08.1'	N 24°48.2'				
2	249°13.4'	210°43.2'	N 15°06.2'	201°25.2'	N 17°26.9'	278°26.0'	S 12°44.6'	293°28.4'	S 17°26.2'	154°08.9'	N 24°48.2'				
3	264°15.9'	225°43.3'	N 15°07.0'	216°24.6'	N 17°27.8'	293°28.1'	S 12°44.4'	308°30.8'	S 17°26.1'	169°09.7'	N 24°48.1'				
4	279°18.4'	240°43.4'	N 15°07.7'	231°24.0'	N 17°28.7'	308°30.3'	S 12°44.3'	323°33.2'	S 17°26.1'	184°10.5'	N 24°48.0'				
5	294°20.8'	255°43.5'	N 15°08.5'	246°23.3'	N 17°29.7'	323°32.4'	S 12°44.2'	338°35.5'	S 17°26.1'	199°11.3'	N 24°48.0'				
6	309°23.3'	270°43.5'	N 15°09.2'	261°22.7'	N 17°30.6'	338°34.5'	S 12°44.1'	353°37.9'	S 17°26.1'	214°12.1'	N 24°47.9'				
7	324°25.8'	285°43.6'	N 15°10.0'	276°22.1'	N 17°31.5'	353°36.6'	S 12°44.0'	8°40.3'	S 17°26.1'	229°12.9'	N 24°47.9'				
8	339°28.2'	300°43.7'	N 15°10.7'	291°21.5'	N 17°32.4'	8°38.7'	S 12°43.9'	23°42.6'	S 17°26.0'	244°13.6'	N 24°47.8'				
9	354°30.7'	315°43.8'	N 15°11.5'	306°20.8'	N 17°33.3'	23°40.9'	S 12°43.8'	38°45.0'	S 17°26.0'	259°14.4'	N 24°47.7'				
10	9°33.2'	330°43.8'	N 15°12.2'	321°20.2'	N 17°34.2'	38°43.0'	S 12°43.6'	53°47.4'	S 17°26.0'	274°15.2'	N 24°47.7'				
11	24°35.6'	345°43.9'	N 15°13.0'	336°19.6'	N 17°35.1'	53°45.1'	S 12°43.5'	68°49.8'	S 17°26.0'	289°16.0'	N 24°47.6'				
12	39°38.1'	0°44.0'	N 15°13.7'	351°19.0'	N 17°36.0'	68°47.2'	S 12°43.4'	83°52.1'	S 17°26.0'	304°16.8'	N 24°47.6'				
13	54°40.6'	15°44.1'	N 15°14.5'	6°18.3'	N 17°36.9'	83°49.3'	S 12°43.3'	98°54.5'	S 17°25.9'	319°17.6'	N 24°47.5'				
14	69°43.0'	30°44.1'	N 15°15.3'	21°17.7'	N 17°37.9'	98°51.5'	S 12°43.2'	113°56.9'	S 17°25.9'	334°18.4'	N 24°47.4'				
15	84°45.5'	45°44.2'	N 15°16.0'	36°17.1'	N 17°38.8'	113°53.6'	S 12°43.1'	128°59.3'	S 17°25.9'	349°19.2'	N 24°47.4'				
16	99°47.9'	60°44.3'	N 15°16.7'	51°16.5'	N 17°39.7'	128°55.7'	S 12°43.0'	144°01.6'	S 17°25.9'	4°20.0'	N 24°47.3'				
17	114°50.4'	75°44.3'	N 15°17.5'	66°15.8'	N 17°40.6'	143°57.8'	S 12°42.8'	159°04.0'	S 17°25.9'	19°20.8'	N 24°47.2'				
18	129°52.9'	90°44.4'	N 15°18.2'	81°15.2'	N 17°41.5'	158°60.0'	S 12°42.7'	174°06.4'	S 17°25.8'	34°21.6'	N 24°47.2'				
19	144°55.3'	105°44.5'	N 15°19.0'	96°14.6'	N 17°42.4'	174°02.1'	S 12°42.6'	189°08.8'	S 17°25.8'	49°22.4'	N 24°47.1'				
20	159°57.8'	120°44.6'	N 15°19.7'	111°14.0'	N 17°43.3'	189°04.2'	S 12°42.5'	204°11.1'	S 17°25.8'	64°23.1'	N 24°47.1'				
21	175°00.3'	135°44.6'	N 15°20.5'	126°13.3'	N 17°44.2'	204°06.3'	S 12°42.4'	219°13.5'	S 17°25.8'	79°23.9'	N 24°47.0'				
22	190°02.7'	150°44.7'	N 15°21.2'	141°12.7'	N 17°45.1'	219°08.5'	S 12°42.3'	234°15.9'	S 17°25.8'	94°24.7'	N 24°46.9'				
23	205°05.2'	165°44.8'	N 15°22.0'	156°12.1'	N 17°46.0'	234°10.6'	S 12°42.2'	249°18.3'	S 17°25.7'	109°25.5'	N 24°46.9'				
		SD 15.9'	d 0.8'		v -0.6'	d 0.9'		v 2.1'	d 0.1'		v 2.4'	d 0.0'		v 0.8'	d -0.1'
Mer. pass.		11 h 57 m 5 s		12 h 35 m		7 h 26 m		6 h 25 m		15 h 43 m					

h	Moon					Lunar distance									
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux		
0	303°59.9'	S 25°27.3'	3.7'	-1.6'	59.7'		53°42.4'	40°55.4'	38°28.9'	24°39.9'	51°05.3'	55°13.3'	66°38.3'		
1	318°22.6'	S 25°28.9'	3.7'	-1.5'	59.6'		53°06.9'	40°35.9'	37°53.2'	25°15.2'	51°22.3'	55°31.2'	66°54.5'		
2	332°45.3'	S 25°30.4'	3.7'	-1.3'	59.6'		52°31.5'	40°16.8'	37°17.6'	25°50.5'	51°39.5'	55°49.4'	67°10.8'		
3	347°08.0'	S 25°31.6'	3.8'	-1.1'	59.6'		51°56.1'	39°58.0'	36°42.1'	26°25.8'	51°56.9'	56°07.7'	67°27.2'		
4	1°30.8'	S 25°32.7'	3.8'	-0.9'	59.5'		51°20.8'	39°39.6'	36°06.6'	27°01.1'	52°14.5'	56°26.2'	67°43.7'		
5	15°53.6'	S 25°33.6'	3.8'	-0.7'	59.5'		50°45.6'	39°21.5'	35°31.2'	27°36.3'	52°32.3'	56°44.9'	68°00.3'		
6	30°16.4'	S 25°34.4'	3.9'	-0.6'	59.5'		50°10.3'	39°03.8'	34°55.8'	28°11.5'	52°50.3'	57°03.7'	68°17.0'		
7	44°39.3'	S 25°34.9'	3.9'	-0.4'	59.4'		49°35.2'	38°46.5'	34°20.4'	28°46.7'	53°08.5'	57°22.6'	68°33.8'		
8	59°02.2'	S 25°35.3'	4.0'	-0.2'	59.4'		49°00.0'	38°29.5'	33°45.1'	29°21.8'	53°26.9'	57°41.7'	68°50.6'		
9	73°25.2'	S 25°35.5'	4.0'	-0.0'	59.4'		48°25.0'	38°13.0'	33°09.9'	29°57.0'	53°45.4'	58°00.9'	69°07.6'		
10	87°48.2'	S 25°35.5'	4.1'	0.2'	59.3'		47°49.9'	37°56.8'	32°34.7'	30°32.1'	54°04.1'	58°20.3'	69°24.7'		
11	102°11.3'	S 25°35.4'	4.1'	0.3'	59.3'		47°14.9'	37°41.0'	31°59.6'	31°07.2'	54°23.0'	58°39.8'	69°41.8'		
12	116°34.5'	S 25°35.1'	4.2'	0.5'	59.2'	119°31.4'	46°40.0'		31°24.5'	31°42.2'	54°42.0'	58°59.5'	69°59.0'		
13	130°57.6'	S 25°34.6'	4.2'	0.7'	59.2'	118°58.4'	46°05.1'		30°49.5'	32°17.2'	55°01.2'	59°19.2'	70°16.4'		
14	145°20.9'	S 25°33.9'	4.3'	0.8'	59.2'	118°25.5'	45°30.3'		30°14.6'	32°52.2'	55°20.6'	59°39.1'	70°33.7'		
15	159°44.2'	S 25°33.0'	4.4'	1.0'	59.1'	117°52.6'	44°55.5'		29°39.7'	33°27.1'	55°40.1'	59°59.1'	70°51.2'		
16	174°07.6'	S 25°32.0'	4.4'	1.2'	59.1'	117°19.8'	44°20.8'		29°04.8'	34°02.1'	55°59.8'	60°19.2'	71°08.7'		
17	188°31.0'	S 25°30.8'	4.5'	1.4'	59.1'	116°47.0'	43°46.1'		28°30.1'	34°36.9'	56°19.6'	60°39.5'	71°26.3'		
18	202°54.5'	S 25°29.5'	4.6'	1.5'	59.0'	116°14.3'	43°11.5'		27°55.3'	35°11.8'	56°39.5'	60°59.8'	71°44.0'		
19	217°18.0'	S 25°27.9'	4.6'	1.7'	59.0'	115°41.6'	42°36.9'		27°20.7'	35°46.6'	56°59.6'	61°20.2'	72°01.7'		
20	231°41.7'	S 25°26.2'	4.7'	1.9'	59.0'	115°09.0'	42°02.3'		26°46.1'	36°21.4'	57°19.7'	61°40.8'	72°19.5'		
21	246°05.4'	S 25°24.4'	4.8'	2.0'	58.9'	114°36.4'	41°27.9'		26°11.6'	36°56.1'	57°40.1'	62°01.4'	72°37.4'		
22	260°29.1'	S 25°22.3'	4.8'	2.2'	58.9'	114°03.8'	40°53.4'		25°37.1'	37°30.8'	58°00.5'	62°22.2'	72°55.3'		
23	274°53.0'	S 25°20.2'	4.9'	2.4'	58.8'	113°31.3'	40°19.0'		25°02.7'	38°05.5'	58°21.1'	62°43.0'	73°13.3'		
Mer. pass.		3 h 54 m SD 16.3'	phase 80%												

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.7'	N 89°21.2'
Rigel Kent	-0.0	139°43.7'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	220°07.7'	180°44.8'	N 15°22.7'	171°11.4'	N 17°46.9'	249°12.7'	S 12°42.1'	264°20.6'	S 17°25.7'	124°26.3'	N 24°46.8'			
1	235°10.1'	195°44.9'	N 15°23.5'	186°10.8'	N 17°47.8'	264°14.8'	S 12°41.9'	279°23.0'	S 17°25.7'	139°27.1'	N 24°46.7'			
2	250°12.6'	210°45.0'	N 15°24.2'	201°10.2'	N 17°48.7'	279°17.0'	S 12°41.8'	294°25.4'	S 17°25.7'	154°27.9'	N 24°46.7'			
3	265°15.1'	225°45.1'	N 15°25.0'	216°09.5'	N 17°49.6'	294°19.1'	S 12°41.7'	309°27.8'	S 17°25.7'	169°28.7'	N 24°46.6'			
4	280°17.5'	240°45.1'	N 15°25.7'	231°08.9'	N 17°50.5'	309°21.2'	S 12°41.6'	324°30.1'	S 17°25.6'	184°29.5'	N 24°46.5'			
5	295°20.0'	255°45.2'	N 15°26.5'	246°08.3'	N 17°51.4'	324°23.3'	S 12°41.5'	339°32.5'	S 17°25.6'	199°30.3'	N 24°46.5'			
6	310°22.4'	270°45.3'	N 15°27.2'	261°07.6'	N 17°52.3'	339°25.5'	S 12°41.4'	354°34.9'	S 17°25.6'	214°31.1'	N 24°46.4'			
7	325°24.9'	285°45.3'	N 15°27.9'	276°07.0'	N 17°53.2'	354°27.6'	S 12°41.3'	9°37.3'	S 17°25.6'	229°31.9'	N 24°46.3'			
8	340°27.4'	300°45.4'	N 15°28.7'	291°06.4'	N 17°54.1'	9°29.7'	S 12°41.2'	24°39.6'	S 17°25.6'	244°32.6'	N 24°46.3'			
9	355°29.8'	315°45.5'	N 15°29.4'	306°05.7'	N 17°55.0'	24°31.8'	S 12°41.0'	39°42.0'	S 17°25.5'	259°33.4'	N 24°46.2'			
10	10°32.3'	330°45.5'	N 15°30.2'	321°05.1'	N 17°55.8'	39°34.0'	S 12°40.9'	54°44.4'	S 17°25.5'	274°34.2'	N 24°46.1'			
11	25°34.8'	345°45.6'	N 15°30.9'	336°04.5'	N 17°56.7'	54°36.1'	S 12°40.8'	69°46.8'	S 17°25.5'	289°35.0'	N 24°46.1'			
12	40°37.2'	0°45.7'	N 15°31.6'	351°03.8'	N 17°57.6'	69°38.2'	S 12°40.7'	84°49.2'	S 17°25.5'	304°35.8'	N 24°46.0'			
13	55°39.7'	15°45.7'	N 15°32.4'	6°03.2'	N 17°58.5'	84°40.3'	S 12°40.6'	99°51.5'	S 17°25.5'	319°36.6'	N 24°45.9'			
14	70°42.2'	30°45.8'	N 15°33.1'	21°02.6'	N 17°59.4'	99°42.5'	S 12°40.5'	114°53.9'	S 17°25.5'	334°37.4'	N 24°45.9'			
15	85°44.6'	45°45.9'	N 15°33.9'	36°01.9'	N 18°00.3'	114°44.6'	S 12°40.4'	129°56.3'	S 17°25.4'	349°38.2'	N 24°45.8'			
16	100°47.1'	60°45.9'	N 15°34.6'	51°01.3'	N 18°01.2'	129°46.7'	S 12°40.3'	144°58.7'	S 17°25.4'	4°39.0'	N 24°45.7'			
17	115°49.6'	75°46.0'	N 15°35.3'	66°00.6'	N 18°02.1'	144°48.9'	S 12°40.1'	160°01.0'	S 17°25.4'	19°39.8'	N 24°45.6'			
18	130°52.0'	90°46.1'	N 15°36.1'	81°00.0'	N 18°03.0'	159°51.0'	S 12°40.0'	175°03.4'	S 17°25.4'	34°40.6'	N 24°45.6'			
19	145°54.5'	105°46.1'	N 15°36.8'	95°59.4'	N 18°03.8'	174°53.1'	S 12°39.9'	190°05.8'	S 17°25.4'	49°41.4'	N 24°45.5'			
20	160°56.9'	120°46.2'	N 15°37.6'	110°58.7'	N 18°04.7'	189°55.2'	S 12°39.8'	205°08.2'	S 17°25.3'	64°42.2'	N 24°45.4'			
21	175°59.4'	135°46.3'	N 15°38.3'	125°58.1'	N 18°05.6'	204°57.4'	S 12°39.7'	220°10.6'	S 17°25.3'	79°42.9'	N 24°45.4'			
22	191°01.9'	150°46.3'	N 15°39.0'	140°57.4'	N 18°06.5'	219°59.5'	S 12°39.6'	235°12.9'	S 17°25.3'	94°43.7'	N 24°45.3'			
23	206°04.3'	165°46.4'	N 15°39.8'	155°56.8'	N 18°07.4'	235°01.6'	S 12°39.5'	250°15.3'	S 17°25.3'	109°44.5'	N 24°45.2'			
		SD 15.9'	d 0.7'	v -0.6'	d 0.9'	v 2.1'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.1'			
Mer. pass.		11 h 56 m 58 s		12 h 36 m		7 h 22 m		6 h 22 m		15 h 41 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acruz
0	289°16.9'	S 25°17.8'	5.0'	2.5'	58.8'	112°58.9'	47°34.7'	39°44.7'	24°28.3'	38°40.1'	58°41.8'	63°03.9'	73°31.3'
1	303°40.9'	S 25°15.3'	5.1'	2.7'	58.8'	112°26.4'	47°02.3'	39°10.4'	23°54.1'	39°14.7'	59°02.5'	63°25.0'	73°49.4'
2	318°05.0'	S 25°12.6'	5.2'	2.8'	58.7'	111°54.1'	46°30.0'	38°36.2'	23°19.9'	39°49.2'	59°23.4'	63°46.1'	74°07.5'
3	332°29.1'	S 25°09.7'	5.2'	3.0'	58.7'	111°21.7'	45°57.9'	38°02.0'	22°45.7'	40°23.7'	59°44.5'	64°07.2'	74°25.7'
4	346°53.4'	S 25°06.7'	5.3'	3.2'	58.7'	110°49.5'	45°25.8'	37°27.9'	22°11.7'	40°58.2'	60°05.6'	64°28.5'	74°43.9'
5	1°17.7'	S 25°03.6'	5.4'	3.3'	58.6'	110°17.2'	44°53.8'	36°53.9'	21°37.7'	41°32.6'	60°26.8'	64°49.8'	75°02.2'
6	15°42.1'	S 25°00.2'	5.5'	3.5'	58.6'	109°45.1'	44°21.9'	36°19.8'	21°03.8'	42°07.0'	60°48.1'	65°11.2'	75°20.5'
7	30°06.6'	S 24°56.8'	5.6'	3.6'	58.5'	109°12.9'	43°50.1'	35°45.9'	20°30.0'	42°41.4'	61°09.5'	65°32.7'	75°38.8'
8	44°31.2'	S 24°53.1'	5.7'	3.8'	58.5'	108°40.8'	43°18.4'	35°12.0'	19°56.2'	43°15.7'	61°30.9'	65°54.3'	75°57.2'
9	58°55.8'	S 24°49.3'	5.8'	3.9'	58.5'	108°08.8'	42°46.9'	34°38.1'	19°22.6'	43°49.9'	61°52.5'	66°15.9'	76°15.7'
10	73°20.6'	S 24°45.4'	5.8'	4.1'	58.4'	107°36.8'	42°15.4'	34°04.3'	18°49.0'	44°24.2'	62°14.2'	66°37.6'	76°34.1'
11	87°45.4'	S 24°41.3'	5.9'	4.2'	58.4'	107°04.8'	41°44.0'	33°30.6'	18°15.5'	44°58.3'	62°35.9'	66°59.3'	76°52.6'
12	102°10.4'	S 24°37.1'	6.0'	4.4'	58.3'	106°32.9'	41°12.7'	32°56.9'	17°42.2'	45°32.5'	62°57.7'	67°21.1'	77°11.2'
13	116°35.4'	S 24°32.7'	6.1'	4.5'	58.3'	106°01.0'	40°41.6'	32°23.2'	17°08.9'	46°06.6'	63°19.6'	67°42.9'	77°29.7'
14	131°00.5'	S 24°28.1'	6.2'	4.7'	58.3'	105°29.2'	40°10.5'	31°49.7'	16°35.7'	46°40.6'	63°41.5'	68°04.8'	77°48.3'
15	145°25.8'	S 24°23.4'	6.3'	4.8'	58.2'	104°57.4'	39°39.6'	31°16.1'	16°02.7'	47°14.7'	64°03.6'	68°26.8'	78°06.9'
16	159°51.1'	S 24°18.6'	6.4'	5.0'	58.2'	104°25.7'	39°08.7'	30°42.7'	15°29.7'	47°48.6'	64°25.7'	68°48.8'	78°25.6'
17	174°16.5'	S 24°13.6'	6.5'	5.1'	58.2'	103°54.0'	38°38.0'	30°09.3'	14°56.9'	48°22.6'	64°47.8'	69°10.9'	78°44.2'
18	188°42.0'	S 24°08.5'	6.6'	5.3'	58.1'	103°22.4'	38°07.5'	29°35.9'	14°24.2'	48°56.5'	65°10.0'	69°33.0'	79°02.9'
19	203°07.6'	S 24°03.2'	6.7'	5.4'	58.1'	102°50.8'	37°37.0'	29°02.6'	13°51.7'	49°30.3'	65°32.3'	69°55.1'	79°21.7'
20	217°33.3'	S 23°57.9'	6.8'	5.5'	58.0'	102°19.2'	37°06.7'	28°29.4'	13°19.4'	50°04.1'	65°54.7'	70°17.3'	79°40.4'
21	231°59.1'	S 23°52.3'	6.9'	5.7'	58.0'	101°47.7'	36°36.5'	27°56.2'	12°47.2'	50°37.9'	66°17.1'	70°39.5'	79°59.1'
22	246°25.1'	S 23°46.6'	7.0'	5.8'	58.0'	101°16.3'	36°06.4'	27°23.1'	12°15.2'	51°11.6'	66°39.5'	71°01.8'	80°17.9'
23	260°51.1'	S 23°40.8'	7.1'	5.9'	57.9'	100°44.8'	35°36.5'	26°50.0'	11°43.4'	51°45.3'	67°02.0'	71°24.1'	80°36.7'
Mer. pass.		4 h 55 m SD 16.0'	phase 70%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acruz	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.2'
Rigel Kent	-0.0	139°43.7'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	221°06.8'	180°46.5'	N 15°40.5'	170°56.2'	N 18°08.2'	250°03.8'	S 12°39.4'	265°17.7'	S 17°25.3'	124°45.3'	N 24°45.1'
1	236°09.3'	195°46.5'	N 15°41.2'	185°55.5'	N 18°09.1'	265°05.9'	S 12°39.3'	280°20.1'	S 17°25.3'	139°46.1'	N 24°45.1'
2	251°11.7'	210°46.6'	N 15°42.0'	200°54.9'	N 18°10.0'	280°08.0'	S 12°39.1'	295°22.5'	S 17°25.2'	154°46.9'	N 24°45.0'
3	266°14.2'	225°46.7'	N 15°42.7'	215°54.2'	N 18°10.9'	295°10.2'	S 12°39.0'	310°24.8'	S 17°25.2'	169°47.7'	N 24°44.9'
4	281°16.7'	240°46.7'	N 15°43.4'	230°53.6'	N 18°11.8'	310°12.3'	S 12°38.9'	325°27.2'	S 17°25.2'	184°48.5'	N 24°44.9'
5	296°19.1'	255°46.8'	N 15°44.2'	245°52.9'	N 18°12.6'	325°14.4'	S 12°38.8'	340°29.6'	S 17°25.2'	199°49.3'	N 24°44.8'
6	311°21.6'	270°46.8'	N 15°44.9'	260°52.3'	N 18°13.5'	340°16.5'	S 12°38.7'	355°32.0'	S 17°25.2'	214°50.1'	N 24°44.7'
7	326°24.1'	285°46.9'	N 15°45.6'	275°51.7'	N 18°14.4'	355°18.7'	S 12°38.6'	10°34.4'	S 17°25.1'	229°50.9'	N 24°44.6'
8	341°26.5'	300°47.0'	N 15°46.4'	290°51.0'	N 18°15.3'	10°20.8'	S 12°38.5'	25°36.7'	S 17°25.1'	244°51.7'	N 24°44.6'
9	356°29.0'	315°47.0'	N 15°47.1'	305°50.4'	N 18°16.1'	25°22.9'	S 12°38.4'	40°39.1'	S 17°25.1'	259°52.4'	N 24°44.5'
10	11°31.4'	330°47.1'	N 15°47.8'	320°49.7'	N 18°17.0'	40°25.1'	S 12°38.3'	55°41.5'	S 17°25.1'	274°53.2'	N 24°44.4'
11	26°33.9'	345°47.2'	N 15°48.6'	335°49.1'	N 18°17.9'	55°27.2'	S 12°38.1'	70°43.9'	S 17°25.1'	289°54.0'	N 24°44.3'
12	41°36.4'	0°47.2'	N 15°49.3'	350°48.4'	N 18°18.7'	70°29.3'	S 12°38.0'	85°46.3'	S 17°25.1'	304°54.8'	N 24°44.3'
13	56°38.8'	15°47.3'	N 15°50.0'	5°47.8'	N 18°19.6'	85°31.5'	S 12°37.9'	100°48.6'	S 17°25.0'	319°55.6'	N 24°44.2'
14	71°41.3'	30°47.3'	N 15°50.7'	20°47.1'	N 18°20.5'	100°33.6'	S 12°37.8'	115°51.0'	S 17°25.0'	334°56.4'	N 24°44.1'
15	86°43.8'	45°47.4'	N 15°51.5'	35°46.5'	N 18°21.4'	115°35.7'	S 12°37.7'	130°53.4'	S 17°25.0'	349°57.2'	N 24°44.0'
16	101°46.2'	60°47.5'	N 15°52.2'	50°45.8'	N 18°22.2'	130°37.9'	S 12°37.6'	145°55.8'	S 17°25.0'	4°58.0'	N 24°43.9'
17	116°48.7'	75°47.5'	N 15°52.9'	65°45.2'	N 18°23.1'	145°40.0'	S 12°37.5'	160°58.2'	S 17°25.0'	19°58.8'	N 24°43.9'
18	131°51.2'	90°47.6'	N 15°53.7'	80°44.5'	N 18°24.0'	160°42.1'	S 12°37.4'	176°00.6'	S 17°25.0'	34°59.6'	N 24°43.8'
19	146°53.6'	105°47.6'	N 15°54.4'	95°43.9'	N 18°24.8'	175°44.3'	S 12°37.3'	191°02.9'	S 17°24.9'	50°00.4'	N 24°43.7'
20	161°56.1'	120°47.7'	N 15°55.1'	110°43.2'	N 18°25.7'	190°46.4'	S 12°37.2'	206°05.3'	S 17°24.9'	65°01.2'	N 24°43.6'
21	176°58.5'	135°47.8'	N 15°55.8'	125°42.6'	N 18°26.5'	205°48.5'	S 12°37.0'	221°07.7'	S 17°24.9'	80°01.9'	N 24°43.6'
22	192°01.0'	150°47.8'	N 15°56.6'	140°41.9'	N 18°27.4'	220°50.7'	S 12°36.9'	236°10.1'	S 17°24.9'	95°02.7'	N 24°43.5'
23	207°03.5'	165°47.9'	N 15°57.3'	155°41.3'	N 18°28.3'	235°52.8'	S 12°36.8'	251°12.5'	S 17°24.9'	110°03.5'	N 24°43.4'
		SD 15.9' d 0.7'		v -0.6' d 0.9'		v 2.1' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'	
Mer. pass.		11 h 56 m 52 s		12 h 37 m		7 h 19 m		6 h 18 m		15 h 40 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+AcruX
0	275°17.2'	S 23°34.9'	7.2'	6.1'	57.9'	100°13.5'	35°06.7'	26°17.0'	11°11.9'	52°19.0'	67°24.6'	71°46.4'	80°55.5'
1	289°43.4'	S 23°28.8'	7.3'	6.2'	57.9'	99°42.1'	34°37.1'	25°44.1'	10°40.6'	52°52.6'	67°47.2'	72°08.8'	81°14.3'
2	304°09.7'	S 23°22.6'	7.4'	6.3'	57.8'	99°10.8'	34°07.6'	25°11.2'	10°09.6'	53°26.1'	68°09.8'	72°31.2'	81°33.1'
3	318°36.1'	S 23°16.3'	7.5'	6.5'	57.8'	98°39.6'	33°38.3'	24°38.4'	9°38.9'	53°59.7'	68°32.5'	72°53.6'	81°51.9'
4	333°02.7'	S 23°09.8'	7.6'	6.6'	57.8'	98°08.4'	33°09.2'	24°05.7'	9°08.6'	54°33.2'	68°55.2'	73°16.0'	82°10.8'
5	347°29.3'	S 23°03.2'	7.7'	6.7'	57.7'	97°37.2'	32°40.2'	23°33.0'	8°38.8'	55°06.6'	69°18.0'	73°38.5'	82°29.6'
6	1°56.1'	S 22°56.5'	7.8'	6.8'	57.7'	97°06.1'	32°11.3'	23°00.4'	8°09.5'	55°40.0'	69°40.8'	74°01.0'	82°48.4'
7	16°22.9'	S 22°49.7'	8.0'	7.0'	57.6'	96°35.1'	31°42.7'	22°27.9'	7°40.8'	56°13.4'	70°03.6'	74°23.5'	83°07.3'
8	30°49.9'	S 22°42.7'	8.1'	7.1'	57.6'	96°04.0'	31°14.2'	21°55.4'		56°46.7'	70°26.5'	74°46.1'	83°26.1'
9	45°16.9'	S 22°35.6'	8.2'	7.2'	57.6'	95°33.0'	30°45.9'	21°23.1'		57°20.0'	70°49.4'	75°08.7'	83°45.0'
10	59°44.1'	S 22°28.4'	8.3'	7.3'	57.5'	95°02.1'	30°17.8'	20°50.7'		57°53.2'	71°12.3'	75°31.2'	84°03.9'
11	74°11.3'	S 22°21.1'	8.4'	7.4'	57.5'	94°31.2'	29°49.9'	20°18.5'		58°26.4'	71°35.3'	75°53.8'	84°22.7'
12	88°38.7'	S 22°13.6'	8.5'	7.6'	57.5'	94°00.3'	29°22.2'	19°46.4'		58°59.5'	71°58.3'	76°16.4'	84°41.6'
13	103°06.2'	S 22°06.1'	8.6'	7.7'	57.4'	93°29.5'	28°54.8'	19°14.3'		59°32.7'	72°21.3'	76°39.1'	85°00.4'
14	117°33.8'	S 21°58.4'	8.7'	7.8'	57.4'	92°58.7'	28°27.5'	18°42.4'		60°05.7'	72°44.3'	77°01.7'	85°19.2'
15	132°01.5'	S 21°50.6'	8.8'	7.9'	57.4'	92°28.0'	28°00.5'	18°10.5'		60°38.8'	73°07.4'	77°24.4'	85°38.1'
16	146°29.3'	S 21°42.7'	8.9'	8.0'	57.3'	91°57.3'	27°33.7'	17°38.7'		61°11.8'	73°30.5'	77°47.0'	85°56.9'
17	160°57.2'	S 21°34.7'	9.0'	8.1'	57.3'	91°26.7'	27°07.2'	17°07.0'		61°44.7'	73°53.6'	78°09.7'	86°15.7'
18	175°25.2'	S 21°26.6'	9.1'	8.2'	57.2'	90°56.1'	26°40.9'	16°35.4'		62°17.6'	74°16.7'	78°32.4'	86°34.5'
19	189°53.4'	S 21°18.4'	9.2'	8.3'	57.2'	90°25.5'	26°14.9'	16°04.0'		62°50.5'	74°39.8'	78°55.1'	86°53.3'
20	204°21.6'	S 21°10.1'	9.3'	8.4'	57.2'	89°55.0'	25°49.2'	15°32.6'		63°23.4'	75°03.0'	79°17.7'	87°12.1'
21	218°49.9'	S 21°01.7'	9.4'	8.5'	57.1'	89°24.5'	25°23.8'	15°01.4'		63°56.2'	75°26.2'	79°40.4'	87°30.9'
22	233°18.4'	S 20°53.1'	9.6'	8.6'	57.1'	88°54.0'	24°58.6'	14°30.4'		64°28.9'	75°49.3'	80°03.1'	87°49.7'
23	247°46.9'	S 20°44.5'	9.7'	8.7'	57.1'	88°23.6'	24°33.8'	13°59.4'		65°01.6'	76°12.5'	80°25.8'	88°08.4'
Mer. pass.		5 h 52 m SD 15.8' phase 59%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	AcruX	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.2'
Rigel Kent	-0.0	139°43.7'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	222°05.9'	180°47.9'	N 15°58.0'	170°40.6'	N 18°29.1'	250°55.0'	S 12°36.7'	266°14.8'	S 17°24.9'	125°04.3'	N 24°43.3'			
1	237°08.4'	195°48.0'	N 15°58.7'	185°39.9'	N 18°30.0'	265°57.1'	S 12°36.6'	281°17.2'	S 17°24.8'	140°05.1'	N 24°43.2'			
2	252°10.9'	210°48.1'	N 15°59.5'	200°39.3'	N 18°30.9'	280°59.2'	S 12°36.5'	296°19.6'	S 17°24.8'	155°05.9'	N 24°43.2'			
3	267°13.3'	225°48.1'	N 16°00.2'	215°38.6'	N 18°31.7'	296°01.4'	S 12°36.4'	311°22.0'	S 17°24.8'	170°06.7'	N 24°43.1'			
4	282°15.8'	240°48.2'	N 16°00.9'	230°38.0'	N 18°32.6'	311°03.5'	S 12°36.3'	326°24.4'	S 17°24.8'	185°07.5'	N 24°43.0'			
5	297°18.3'	255°48.2'	N 16°01.6'	245°37.3'	N 18°33.4'	326°05.6'	S 12°36.2'	341°26.8'	S 17°24.8'	200°08.3'	N 24°42.9'			
6	312°20.7'	270°48.3'	N 16°02.3'	260°36.7'	N 18°34.3'	341°07.8'	S 12°36.1'	356°29.2'	S 17°24.7'	215°09.1'	N 24°42.8'			
7	327°23.2'	285°48.3'	N 16°03.1'	275°36.0'	N 18°35.1'	356°09.9'	S 12°36.0'	11°31.5'	S 17°24.7'	230°09.9'	N 24°42.8'			
8	342°25.7'	300°48.4'	N 16°03.8'	290°35.4'	N 18°36.0'	11°12.0'	S 12°35.8'	26°33.9'	S 17°24.7'	245°10.7'	N 24°42.7'			
9	357°28.1'	315°48.5'	N 16°04.5'	305°34.7'	N 18°36.8'	26°14.2'	S 12°35.7'	41°36.3'	S 17°24.7'	260°11.5'	N 24°42.6'			
10	12°30.6'	330°48.5'	N 16°05.2'	320°34.0'	N 18°37.7'	41°16.3'	S 12°35.6'	56°38.7'	S 17°24.7'	275°12.2'	N 24°42.5'			
11	27°33.0'	345°48.6'	N 16°05.9'	335°33.4'	N 18°38.5'	56°18.5'	S 12°35.5'	71°41.1'	S 17°24.7'	290°13.0'	N 24°42.4'			
12	42°35.5'	0°48.6'	N 16°06.7'	350°32.7'	N 18°39.4'	71°20.6'	S 12°35.4'	86°43.5'	S 17°24.7'	305°13.8'	N 24°42.3'			
13	57°38.0'	15°48.7'	N 16°07.4'	5°32.1'	N 18°40.2'	86°22.7'	S 12°35.3'	101°45.8'	S 17°24.6'	320°14.6'	N 24°42.3'			
14	72°40.4'	30°48.7'	N 16°08.1'	20°31.4'	N 18°41.1'	101°24.9'	S 12°35.2'	116°48.2'	S 17°24.6'	335°15.4'	N 24°42.2'			
15	87°42.9'	45°48.8'	N 16°08.8'	35°30.7'	N 18°41.9'	116°27.0'	S 12°35.1'	131°50.6'	S 17°24.6'	350°16.2'	N 24°42.1'			
16	102°45.4'	60°48.8'	N 16°09.5'	50°30.1'	N 18°42.8'	131°29.2'	S 12°35.0'	146°53.0'	S 17°24.6'	5°17.0'	N 24°42.0'			
17	117°47.8'	75°48.9'	N 16°10.2'	65°29.4'	N 18°43.6'	146°31.3'	S 12°34.9'	161°55.4'	S 17°24.6'	20°17.8'	N 24°41.9'			
18	132°50.3'	90°49.0'	N 16°11.0'	80°28.7'	N 18°44.5'	161°33.4'	S 12°34.8'	176°57.8'	S 17°24.6'	35°18.6'	N 24°41.8'			
19	147°52.8'	105°49.0'	N 16°11.7'	95°28.1'	N 18°45.3'	176°35.6'	S 12°34.7'	192°00.2'	S 17°24.5'	50°19.4'	N 24°41.8'			
20	162°55.2'	120°49.1'	N 16°12.4'	110°27.4'	N 18°46.2'	191°37.7'	S 12°34.5'	207°02.6'	S 17°24.5'	65°20.2'	N 24°41.7'			
21	177°57.7'	135°49.1'	N 16°13.1'	125°26.8'	N 18°47.0'	206°39.9'	S 12°34.4'	222°04.9'	S 17°24.5'	80°21.0'	N 24°41.6'			
22	193°00.2'	150°49.2'	N 16°13.8'	140°26.1'	N 18°47.9'	221°42.0'	S 12°34.3'	237°07.3'	S 17°24.5'	95°21.8'	N 24°41.5'			
23	208°02.6'	165°49.2'	N 16°14.5'	155°25.4'	N 18°48.7'	236°44.1'	S 12°34.2'	252°09.7'	S 17°24.5'	110°22.5'	N 24°41.4'			
		SD 15.9'	d 0.7'	v -0.7'	d 0.9'	v 2.1'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.1'			
Mer. pass.		11 h 56 m 46 s		12 h 38 m		7 h 15 m		6 h 14 m		15 h 39 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	262°15.6'	S 20°35.8'	9.8'	8.8'	57.0'	87°53.2'	24°09.3'	13°28.7'			65°34.3'	76°35.7'	80°48.5'
1	276°44.3'	S 20°26.9'	9.9'	8.9'	57.0'	87°22.9'	23°45.2'	12°58.1'			66°07.0'	76°58.9'	81°11.2'
2	291°13.2'	S 20°18.0'	10.0'	9.0'	57.0'	86°52.6'	23°21.4'	12°27.7'			66°39.6'	77°22.2'	81°33.9'
3	305°42.2'	S 20°09.0'	10.1'	9.1'	56.9'	86°22.4'	22°58.0'	11°57.5'			67°12.1'	77°45.4'	81°56.6'
4	320°11.3'	S 19°59.9'	10.2'	9.2'	56.9'	85°52.1'	22°35.0'	11°27.5'			67°44.7'	78°08.6'	82°19.3'
5	334°40.4'	S 19°50.7'	10.3'	9.3'	56.9'	85°22.0'	22°12.4'	10°57.8'			68°17.2'	78°31.9'	82°41.9'
6	349°09.7'	S 19°41.4'	10.4'	9.4'	56.8'	84°51.8'	21°50.2'	10°28.3'	7°18.4'		68°49.6'	78°55.1'	83°04.6'
7	3°39.1'	S 19°32.0'	10.5'	9.5'	56.8'	84°21.7'	21°28.5'	9°59.2'	7°45.7'	38°08.3'	69°22.0'	79°18.4'	83°27.3'
8	18°08.6'	S 19°22.5'	10.6'	9.6'	56.8'	83°51.7'	21°07.2'	9°30.5'	8°13.7'	38°23.3'	69°54.4'	79°41.6'	83°49.9'
9	32°38.2'	S 19°12.9'	10.7'	9.7'	56.7'	83°21.6'	20°46.4'	9°02.2'	8°42.1'	38°38.6'	70°26.8'	80°04.8'	84°12.6'
10	47°07.9'	S 19°03.2'	10.8'	9.7'	56.7'	82°51.6'	20°26.1'	8°34.3'	9°10.9'	38°54.2'	70°59.1'	80°28.1'	84°35.2'
11	61°37.7'	S 18°53.5'	10.9'	9.8'	56.7'	82°21.7'	20°06.4'	8°07.0'	9°40.1'	39°10.1'	71°31.4'	80°51.3'	84°57.8'
12	76°07.6'	S 18°43.7'	11.0'	9.9'	56.6'	81°51.8'	19°47.2'	7°40.3'	10°09.6'	39°26.2'	72°03.6'	81°14.6'	85°20.5'
13	90°37.6'	S 18°33.8'	11.1'	10.0'	56.6'	81°21.9'	19°28.5'		10°39.3'	39°42.6'	72°35.8'	81°37.8'	85°43.1'
14	105°07.7'	S 18°23.8'	11.2'	10.1'	56.6'	80°52.1'	19°10.5'		11°09.1'	39°59.2'	73°08.0'	82°01.0'	86°05.7'
15	119°37.9'	S 18°13.7'	11.3'	10.1'	56.5'	80°22.3'	18°53.1'		11°39.2'	40°16.1'	73°40.1'	82°24.3'	86°28.2'
16	134°08.2'	S 18°03.6'	11.4'	10.2'	56.5'	79°52.5'	18°36.4'		12°09.4'	40°33.2'	74°12.2'	82°47.5'	86°50.8'
17	148°38.5'	S 17°53.3'	11.5'	10.3'	56.5'	79°22.7'	18°20.4'		12°39.7'	40°50.5'	74°44.3'	83°10.7'	87°13.3'
18	163°09.0'	S 17°43.0'	11.6'	10.4'	56.4'	78°53.0'			13°10.2'	41°08.1'	75°16.3'	83°33.9'	87°35.9'
19	177°39.6'	S 17°32.7'	11.7'	10.4'	56.4'	78°23.4'			13°40.7'	41°25.9'	75°48.3'	83°57.1'	87°58.4'
20	192°10.3'	S 17°22.2'	11.8'	10.5'	56.4'	77°53.7'			14°11.3'	41°43.9'	76°20.2'	84°20.3'	88°20.8'
21	206°41.1'	S 17°11.7'	11.9'	10.6'	56.3'	77°24.1'			14°41.9'	42°02.1'	76°52.2'	84°43.5'	88°43.3'
22	221°11.9'	S 17°01.1'	12.0'	10.7'	56.3'	76°54.6'			15°12.6'	42°20.6'	77°24.1'	85°06.6'	89°05.8'
23	235°42.9'	S 16°50.4'	12.1'	10.7'	56.3'	76°25.1'			15°43.4'	42°39.2'	77°55.9'	85°29.8'	89°28.2'
Mer. pass.		6 h 45 m SD 15.6'	phase 48%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.1'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.1'
Rigel Kent	-0.0	139°43.7'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	223°05.1'	180°49.3'	N 16°15.3'	170°24.8'	N 18°49.5'	251°46.3'	S 12°34.1'	267°12.1'	S 17°24.5'	125°23.3'	N 24°41.3'			
1	238°07.5'	195°49.3'	N 16°16.0'	185°24.1'	N 18°50.4'	266°48.4'	S 12°34.0'	282°14.5'	S 17°24.4'	140°24.1'	N 24°41.2'			
2	253°10.0'	210°49.4'	N 16°16.7'	200°23.4'	N 18°51.2'	281°50.6'	S 12°33.9'	297°16.9'	S 17°24.4'	155°24.9'	N 24°41.2'			
3	268°12.5'	225°49.4'	N 16°17.4'	215°22.8'	N 18°52.1'	296°52.7'	S 12°33.8'	312°19.3'	S 17°24.4'	170°25.7'	N 24°41.1'			
4	283°14.9'	240°49.5'	N 16°18.1'	230°22.1'	N 18°52.9'	311°54.8'	S 12°33.7'	327°21.7'	S 17°24.4'	185°26.5'	N 24°41.0'			
5	298°17.4'	255°49.5'	N 16°18.8'	245°21.4'	N 18°53.7'	326°57.0'	S 12°33.6'	342°24.0'	S 17°24.4'	200°27.3'	N 24°40.9'			
6	313°19.9'	270°49.6'	N 16°19.5'	260°20.8'	N 18°54.6'	341°59.1'	S 12°33.5'	357°26.4'	S 17°24.4'	215°28.1'	N 24°40.8'			
7	328°22.3'	285°49.6'	N 16°20.2'	275°20.1'	N 18°55.4'	357°01.3'	S 12°33.4'	12°28.8'	S 17°24.3'	230°28.9'	N 24°40.7'			
8	343°24.8'	300°49.7'	N 16°20.9'	290°19.4'	N 18°56.2'	12°03.4'	S 12°33.3'	27°31.2'	S 17°24.3'	245°29.7'	N 24°40.6'			
9	358°27.3'	315°49.7'	N 16°21.7'	305°18.7'	N 18°57.1'	27°05.6'	S 12°33.2'	42°33.6'	S 17°24.3'	260°30.5'	N 24°40.5'			
10	13°29.7'	330°49.8'	N 16°22.4'	320°18.1'	N 18°57.9'	42°07.7'	S 12°33.0'	57°36.0'	S 17°24.3'	275°31.3'	N 24°40.4'			
11	28°32.2'	345°49.8'	N 16°23.1'	335°17.4'	N 18°58.7'	57°09.8'	S 12°32.9'	72°38.4'	S 17°24.3'	290°32.1'	N 24°40.4'			
12	43°34.6'	0°49.9'	N 16°23.8'	350°16.7'	N 18°59.6'	72°12.0'	S 12°32.8'	87°40.8'	S 17°24.3'	305°32.8'	N 24°40.3'			
13	58°37.1'	15°49.9'	N 16°24.5'	5°16.1'	N 19°00.4'	87°14.1'	S 12°32.7'	102°43.1'	S 17°24.3'	320°33.6'	N 24°40.2'			
14	73°39.6'	30°50.0'	N 16°25.2'	20°15.4'	N 19°01.2'	102°16.3'	S 12°32.6'	117°45.5'	S 17°24.2'	335°34.4'	N 24°40.1'			
15	88°42.0'	45°50.0'	N 16°25.9'	35°14.7'	N 19°02.0'	117°18.4'	S 12°32.5'	132°47.9'	S 17°24.2'	350°35.2'	N 24°40.0'			
16	103°44.5'	60°50.1'	N 16°26.6'	50°14.0'	N 19°02.9'	132°20.6'	S 12°32.4'	147°50.3'	S 17°24.2'	5°36.0'	N 24°39.9'			
17	118°47.0'	75°50.1'	N 16°27.3'	65°13.4'	N 19°03.7'	147°22.7'	S 12°32.3'	162°52.7'	S 17°24.2'	20°36.8'	N 24°39.8'			
18	133°49.4'	90°50.2'	N 16°28.0'	80°12.7'	N 19°04.5'	162°24.9'	S 12°32.2'	177°55.1'	S 17°24.2'	35°37.6'	N 24°39.7'			
19	148°51.9'	105°50.2'	N 16°28.7'	95°12.0'	N 19°05.3'	177°27.0'	S 12°32.1'	192°57.5'	S 17°24.2'	50°38.4'	N 24°39.6'			
20	163°54.4'	120°50.3'	N 16°29.4'	110°11.3'	N 19°06.2'	192°29.1'	S 12°32.0'	207°59.9'	S 17°24.2'	65°39.2'	N 24°39.5'			
21	178°56.8'	135°50.3'	N 16°30.1'	125°10.7'	N 19°07.0'	207°31.3'	S 12°31.9'	223°02.3'	S 17°24.1'	80°40.0'	N 24°39.4'			
22	193°59.3'	150°50.4'	N 16°30.8'	140°10.0'	N 19°07.8'	222°33.4'	S 12°31.8'	238°04.7'	S 17°24.1'	95°40.8'	N 24°39.3'			
23	209°01.8'	165°50.4'	N 16°31.5'	155°09.3'	N 19°08.6'	237°35.6'	S 12°31.7'	253°07.1'	S 17°24.1'	110°41.6'	N 24°39.3'			
		SD 15.9' d 0.7'		v -0.7' d 0.8'		v 2.1' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 41 s		12 h 39 m		7 h 12 m		6 h 10 m		15 h 38 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	+Jupiter	+Saturn	+Altair	+Antares	+Rigil Kent	+Hadar	+Acrux
0	250°13.9'	S 16°39.7'	12.1'	10.8'	56.3'	75°55.6'		16°14.2'	42°58.0'	78°27.8'	85°52.9'	89°50.6'	95°49.4'
1	264°45.1'	S 16°28.9'	12.2'	10.9'	56.2'	75°26.1'		16°45.0'	43°17.0'	78°59.5'	86°16.1'	90°13.0'	96°07.4'
2	279°16.3'	S 16°18.1'	12.3'	10.9'	56.2'	74°56.7'		17°15.9'	43°36.2'	79°31.3'	86°39.2'	90°35.3'	96°25.4'
3	293°47.6'	S 16°07.1'	12.4'	11.0'	56.2'	74°27.3'		17°46.8'	43°55.5'	80°03.0'	87°02.3'	90°57.7'	96°43.4'
4	308°19.1'	S 15°56.1'	12.5'	11.1'	56.1'	73°57.9'		18°17.7'	44°15.0'	80°34.7'	87°25.3'	91°20.0'	97°01.3'
5	322°50.6'	S 15°45.1'	12.6'	11.1'	56.1'	73°28.6'		18°48.6'	44°34.7'	81°06.4'	87°48.4'	91°42.3'	97°19.1'
6	337°22.1'	S 15°34.0'	12.7'	11.2'	56.1'	72°59.3'		19°19.5'	44°54.6'	81°38.0'	88°11.5'	92°04.5'	97°36.9'
7	351°53.8'	S 15°22.8'	12.8'	11.2'	56.0'	72°30.0'		19°50.4'	45°14.6'	82°09.6'	88°34.5'	92°26.7'	97°54.7'
8	6°25.6'	S 15°11.5'	12.8'	11.3'	56.0'	72°00.8'		20°21.4'	45°34.8'	82°41.2'	88°57.5'	92°48.9'	98°12.4'
9	20°57.4'	S 15°00.2'	12.9'	11.4'	56.0'	71°31.6'		20°52.3'	45°55.1'	83°12.7'	89°20.5'	93°11.1'	98°30.1'
10	35°29.4'	S 14°48.9'	13.0'	11.4'	56.0'	71°02.4'		21°23.2'	46°15.5'	83°44.3'	89°43.4'	93°33.3'	98°47.7'
11	50°01.4'	S 14°37.5'	13.1'	11.5'	55.9'	70°33.2'	7°14.7'	21°54.2'	46°36.1'	84°15.7'	90°06.4'	93°55.4'	99°05.3'
12	64°33.5'	S 14°26.0'	13.2'	11.5'	55.9'	70°04.1'	7°40.0'	22°25.1'	46°56.9'	84°47.2'	90°29.3'	94°17.4'	99°22.8'
13	79°05.6'	S 14°14.5'	13.3'	11.6'	55.9'	69°35.0'	8°05.9'	22°56.0'	47°17.8'	85°18.6'	90°52.2'	94°39.5'	99°40.3'
14	93°37.9'	S 14°02.9'	13.3'	11.6'	55.8'	69°06.0'	8°32.5'	23°26.9'	47°38.8'	85°50.0'	91°15.1'	95°01.5'	99°57.8'
15	108°10.2'	S 13°51.3'	13.4'	11.7'	55.8'	68°36.9'	8°59.5'	23°57.8'	47°59.9'	86°21.4'	91°37.9'	95°23.5'	100°15.1'
16	122°42.6'	S 13°39.6'	13.5'	11.7'	55.8'	68°07.9'	9°26.8'	24°28.7'	48°21.1'	86°52.7'	92°00.8'	95°45.4'	100°32.5'
17	137°15.1'	S 13°27.9'	13.6'	11.8'	55.8'	67°39.0'	9°54.6'	24°59.6'	48°42.5'	87°24.0'	92°23.6'	96°07.3'	100°49.7'
18	151°47.7'	S 13°16.2'	13.6'	11.8'	55.7'	67°10.0'	10°22.6'	25°30.5'	49°04.0'	87°55.3'	92°46.3'	96°29.2'	101°07.0'
19	166°20.3'	S 13°04.3'	13.7'	11.9'	55.7'	66°41.1'	10°50.8'	26°01.4'	49°25.6'	88°26.5'	93°09.1'	96°51.1'	101°24.1'
20	180°53.0'	S 12°52.5'	13.8'	11.9'	55.7'	66°12.2'	11°19.3'	26°32.2'	49°47.3'	88°57.7'	93°31.8'	97°12.9'	101°41.2'
21	195°25.8'	S 12°40.6'	13.9'	12.0'	55.7'	65°43.4'	11°48.0'	27°03.0'	50°09.1'	89°28.9'	93°54.5'	97°34.6'	101°58.3'
22	209°58.7'	S 12°28.6'	13.9'	12.0'	55.6'	65°14.6'	12°16.8'	27°33.9'	50°31.0'	90°00.1'	94°17.1'	97°56.3'	102°15.3'
23	224°31.6'	S 12°16.6'	14.0'	12.0'	55.6'	64°45.8'	12°45.7'	28°04.7'	50°53.0'	90°31.2'	94°39.8'	98°18.0'	102°32.2'
Mer. pass.		7 h 33 m SD 15.3'		phase 38%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

Thursday 06 May 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	224°04.2'	180°50.5'	N 16°32.2'	170°08.6'	N 19°09.4'		252°37.7'	S 12°31.6'		268°09.4'	S 17°24.1'		125°42.4'	N 24°39.2'				
1	239°06.7'	195°50.5'	N 16°32.9'	185°08.0'	N 19°10.3'		267°39.9'	S 12°31.5'		283°11.8'	S 17°24.1'		140°43.1'	N 24°39.1'				
2	254°09.1'	210°50.6'	N 16°33.6'	200°07.3'	N 19°11.1'		282°42.0'	S 12°31.4'		298°14.2'	S 17°24.1'		155°43.9'	N 24°39.0'				
3	269°11.6'	225°50.6'	N 16°34.3'	215°06.6'	N 19°11.9'		297°44.2'	S 12°31.2'		313°16.6'	S 17°24.0'		170°44.7'	N 24°38.9'				
4	284°14.1'	240°50.6'	N 16°35.0'	230°05.9'	N 19°12.7'		312°46.3'	S 12°31.1'		328°19.0'	S 17°24.0'		185°45.5'	N 24°38.8'				
5	299°16.5'	255°50.7'	N 16°35.7'	245°05.2'	N 19°13.5'		327°48.5'	S 12°31.0'		343°21.4'	S 17°24.0'		200°46.3'	N 24°38.7'				
6	314°19.0'	270°50.7'	N 16°36.4'	260°04.6'	N 19°14.3'		342°50.6'	S 12°30.9'		358°23.8'	S 17°24.0'		215°47.1'	N 24°38.6'				
7	329°21.5'	285°50.8'	N 16°37.1'	275°03.9'	N 19°15.2'		357°52.8'	S 12°30.8'		13°26.2'	S 17°24.0'		230°47.9'	N 24°38.5'				
8	344°23.9'	300°50.8'	N 16°37.8'	290°03.2'	N 19°16.0'		12°54.9'	S 12°30.7'		28°28.6'	S 17°24.0'		245°48.7'	N 24°38.4'				
9	359°26.4'	315°50.9'	N 16°38.5'	305°02.5'	N 19°16.8'		27°57.1'	S 12°30.6'		43°31.0'	S 17°24.0'		260°49.5'	N 24°38.3'				
10	14°28.9'	330°50.9'	N 16°39.2'	320°01.8'	N 19°17.6'		42°59.2'	S 12°30.5'		58°33.4'	S 17°23.9'		275°50.3'	N 24°38.2'				
11	29°31.3'	345°51.0'	N 16°39.9'	335°01.2'	N 19°18.4'		58°01.4'	S 12°30.4'		73°35.8'	S 17°23.9'		290°51.1'	N 24°38.1'				
12	44°33.8'	0°51.0'	N 16°40.6'	350°00.5'	N 19°19.2'		73°03.5'	S 12°30.3'		88°38.2'	S 17°23.9'		305°51.9'	N 24°38.0'				
13	59°36.3'	15°51.0'	N 16°41.3'	4°59.8'	N 19°20.0'		88°05.7'	S 12°30.2'		103°40.5'	S 17°23.9'		320°52.7'	N 24°37.9'				
14	74°38.7'	30°51.1'	N 16°42.0'	19°59.1'	N 19°20.8'		103°07.8'	S 12°30.1'		118°42.9'	S 17°23.9'		335°53.4'	N 24°37.8'				
15	89°41.2'	45°51.1'	N 16°42.7'	34°58.4'	N 19°21.6'		118°10.0'	S 12°30.0'		133°45.3'	S 17°23.9'		350°54.2'	N 24°37.7'				
16	104°43.6'	60°51.2'	N 16°43.4'	49°57.7'	N 19°22.4'		133°12.1'	S 12°29.9'		148°47.7'	S 17°23.9'		5°55.0'	N 24°37.6'				
17	119°46.1'	75°51.2'	N 16°44.1'	64°57.0'	N 19°23.2'		148°14.3'	S 12°29.8'		163°50.1'	S 17°23.8'		20°55.8'	N 24°37.5'				
18	134°48.6'	90°51.3'	N 16°44.8'	79°56.4'	N 19°24.0'		163°16.4'	S 12°29.7'		178°52.5'	S 17°23.8'		35°56.6'	N 24°37.4'				
19	149°51.0'	105°51.3'	N 16°45.5'	94°55.7'	N 19°24.8'		178°18.6'	S 12°29.6'		193°54.9'	S 17°23.8'		50°57.4'	N 24°37.3'				
20	164°53.5'	120°51.3'	N 16°46.2'	109°55.0'	N 19°25.6'		193°20.7'	S 12°29.5'		208°57.3'	S 17°23.8'		65°58.2'	N 24°37.2'				
21	179°56.0'	135°51.4'	N 16°46.9'	124°54.3'	N 19°26.4'		208°22.9'	S 12°29.4'		223°59.7'	S 17°23.8'		80°59.0'	N 24°37.1'				
22	194°58.4'	150°51.4'	N 16°47.6'	139°53.6'	N 19°27.2'		223°25.0'	S 12°29.3'		239°02.1'	S 17°23.8'		95°59.8'	N 24°37.0'				
23	210°00.9'	165°51.5'	N 16°48.2'	154°52.9'	N 19°28.0'		238°27.2'	S 12°29.2'		254°04.5'	S 17°23.8'		111°00.6'	N 24°36.9'				
		SD 15.8' d 0.7'		v -0.7' d 0.8'			v 2.1' d 0.1'			v 2.4' d 0.0'			v 0.8' d -0.1'					
Mer. pass.		11 h 56 m 37 s		12 h 40 m			7 h 8 m			6 h 6 m			15 h 36 m					

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Sun	+Jupiter	+Fomalhaut	+Saturn	+Altair	+Antares	+Rigil Kent	+Hadar	
0	239°04.6'	S 12°04.6'	14.1'	12.1'	55.6'	64°17.0'	13°14.8'		28°35.5'	51°15.1'	91°02.3'	95°02.4'	98°39.7'	
1	253°37.7'	S 11°52.5'	14.1'	12.1'	55.6'	63°48.2'	13°44.0'		29°06.3'	51°37.3'	91°33.4'	95°24.9'	99°01.3'	
2	268°10.8'	S 11°40.4'	14.2'	12.2'	55.5'	63°19.5'	14°13.2'		29°37.0'	51°59.6'	92°04.5'	95°47.5'	99°22.8'	
3	282°44.1'	S 11°28.2'	14.3'	12.2'	55.5'	62°50.8'	14°42.6'		30°07.8'	52°21.9'	92°35.5'	96°10.0'	99°44.4'	
4	297°17.3'	S 11°16.0'	14.3'	12.2'	55.5'	62°22.1'	15°12.0'	18°21.7'	30°38.5'	52°44.4'	93°06.5'	96°32.5'	100°05.8'	
5	311°50.7'	S 11°03.8'	14.4'	12.3'	55.5'	61°53.5'	15°41.5'	18°37.3'	31°09.2'	53°07.0'	93°37.5'	96°54.9'	100°27.3'	
6	326°24.1'	S 10°51.5'	14.5'	12.3'	55.4'	61°24.9'	16°11.0'	18°53.4'	31°39.9'	53°29.6'	94°08.5'	97°17.3'	100°48.7'	
7	340°57.5'	S 10°39.2'	14.5'	12.3'	55.4'	60°56.3'	16°40.6'	19°10.2'	32°10.6'	53°52.3'	94°39.4'	97°39.7'	101°10.0'	
8	355°31.1'	S 10°26.9'	14.6'	12.4'	55.4'	60°27.7'	17°10.2'	19°27.5'	32°41.3'	54°15.1'	95°10.3'	98°02.0'	101°31.3'	
9	10°04.7'	S 10°14.5'	14.7'	12.4'	55.4'	59°59.2'	17°39.9'	19°45.3'	33°11.9'	54°37.9'	95°41.2'	98°24.3'	101°52.6'	
10	24°38.3'	S 10°02.1'	14.7'	12.4'	55.3'	59°30.7'	18°09.5'	20°03.6'	33°42.6'	55°00.8'	96°12.0'	98°46.6'	102°13.8'	
11	39°12.0'	S 9°49.6'	14.8'	12.5'	55.3'	59°02.2'	18°39.3'	20°22.3'	34°13.2'	55°23.8'	96°42.9'	99°08.8'	102°34.9'	
12	53°45.8'	S 9°37.2'	14.8'	12.5'	55.3'	58°33.7'	19°09.0'	20°41.6'	34°43.8'	55°46.9'	97°13.7'	99°31.0'	102°56.0'	
13	68°19.6'	S 9°24.7'	14.9'	12.5'	55.3'	58°05.2'	19°38.7'	21°01.2'	35°14.4'	56°10.0'	97°44.4'	99°53.1'	103°17.1'	
14	82°53.5'	S 9°12.1'	14.9'	12.6'	55.2'	57°36.8'	20°08.5'	21°21.3'	35°44.9'	56°33.2'	98°15.2'	100°15.2'	103°38.1'	
15	97°27.4'	S 8°59.6'	15.0'	12.6'	55.2'	57°08.4'	20°38.3'	21°41.8'	36°15.5'	56°56.5'	98°45.9'	100°37.3'	103°59.0'	
16	112°01.4'	S 8°47.0'	15.0'	12.6'	55.2'	56°40.0'	21°08.1'	22°02.6'	36°46.0'	57°19.8'	99°16.7'	100°59.3'	104°19.9'	
17	126°35.5'	S 8°34.4'	15.1'	12.6'	55.2'	56°11.7'	21°37.9'	22°23.7'	37°16.5'	57°43.2'	99°47.3'	101°21.3'	104°40.8'	
18	141°09.6'	S 8°21.8'	15.1'	12.7'	55.2'	55°43.4'	22°07.7'	22°45.3'	37°47.0'	58°06.6'	100°18.0'	101°43.2'	105°01.6'	
19	155°43.7'	S 8°09.1'	15.2'	12.7'	55.1'	55°15.0'	22°37.5'	23°07.1'	38°17.5'	58°30.1'	100°48.7'	102°05.1'	105°22.3'	
20	170°17.9'	S 7°56.4'	15.2'	12.7'	55.1'	54°46.8'	23°07.3'	23°29.2'	38°48.0'	58°53.6'	101°19.3'	102°26.9'	105°43.0'	
21	184°52.2'	S 7°43.7'	15.3'	12.7'	55.1'	54°18.5'	23°37.1'	23°51.6'	39°18.4'	59°17.2'	101°49.9'	102°48.7'	106°03.6'	
22	199°26.5'	S 7°31.0'	15.3'	12.8'	55.1'	53°50.2'	24°07.0'	24°14.3'	39°48.9'	59°40.9'	102°20.5'	103°10.5'	106°24.2'	
23	214°00.8'	S 7°18.2'	15.4'	12.8'	55.0'	53°22.0'	24°36.8'	24°37.2'	40°19.3'	60°04.6'	102°51.0'	103°32.2'	106°44.7'	
Mer. pass.		8 h 18 m SD 15.2'		phase 28%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.8'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	225°03.4'	180°51.5'	N 16°48.9'	169°52.2'	N 19°28.8'	253°29.3'	S 12°29.1'	269°06.9'	S 17°23.8'	126°01.4'	N 24°36.8'			
1	240°05.8'	195°51.5'	N 16°49.6'	184°51.5'	N 19°29.6'	268°31.5'	S 12°29.0'	284°09.3'	S 17°23.7'	141°02.2'	N 24°36.7'			
2	255°08.3'	210°51.6'	N 16°50.3'	199°50.9'	N 19°30.4'	283°33.6'	S 12°28.9'	299°11.7'	S 17°23.7'	156°03.0'	N 24°36.6'			
3	270°10.7'	225°51.6'	N 16°51.0'	214°50.2'	N 19°31.2'	298°35.8'	S 12°28.7'	314°14.1'	S 17°23.7'	171°03.8'	N 24°36.5'			
4	285°13.2'	240°51.7'	N 16°51.7'	229°49.5'	N 19°32.0'	313°37.9'	S 12°28.6'	329°16.5'	S 17°23.7'	186°04.5'	N 24°36.4'			
5	300°15.7'	255°51.7'	N 16°52.4'	244°48.8'	N 19°32.8'	328°40.1'	S 12°28.5'	344°18.9'	S 17°23.7'	201°05.3'	N 24°36.3'			
6	315°18.1'	270°51.7'	N 16°53.1'	259°48.1'	N 19°33.6'	343°42.2'	S 12°28.4'	359°21.3'	S 17°23.7'	216°06.1'	N 24°36.2'			
7	330°20.6'	285°51.8'	N 16°53.8'	274°47.4'	N 19°34.4'	358°44.4'	S 12°28.3'	14°23.7'	S 17°23.7'	231°06.9'	N 24°36.1'			
8	345°23.1'	300°51.8'	N 16°54.4'	289°46.7'	N 19°35.2'	13°46.6'	S 12°28.2'	29°26.1'	S 17°23.6'	246°07.7'	N 24°36.0'			
9	0°25.5'	315°51.9'	N 16°55.1'	304°46.0'	N 19°36.0'	28°48.7'	S 12°28.1'	44°28.5'	S 17°23.6'	261°08.5'	N 24°35.9'			
10	15°28.0'	330°51.9'	N 16°55.8'	319°45.3'	N 19°36.8'	43°50.9'	S 12°28.0'	59°30.9'	S 17°23.6'	276°09.3'	N 24°35.8'			
11	30°30.5'	345°51.9'	N 16°56.5'	334°44.6'	N 19°37.6'	58°53.0'	S 12°27.9'	74°33.2'	S 17°23.6'	291°10.1'	N 24°35.7'			
12	45°32.9'	0°52.0'	N 16°57.2'	349°43.9'	N 19°38.3'	73°55.2'	S 12°27.8'	89°35.6'	S 17°23.6'	306°10.9'	N 24°35.6'			
13	60°35.4'	15°52.0'	N 16°57.9'	4°43.2'	N 19°39.1'	88°57.3'	S 12°27.7'	104°38.0'	S 17°23.6'	321°11.7'	N 24°35.5'			
14	75°37.9'	30°52.1'	N 16°58.6'	19°42.5'	N 19°39.9'	103°59.5'	S 12°27.6'	119°40.4'	S 17°23.6'	336°12.5'	N 24°35.4'			
15	90°40.3'	45°52.1'	N 16°59.2'	34°41.8'	N 19°40.7'	119°01.6'	S 12°27.5'	134°42.8'	S 17°23.6'	351°13.3'	N 24°35.3'			
16	105°42.8'	60°52.1'	N 16°59.9'	49°41.1'	N 19°41.5'	134°03.8'	S 12°27.4'	149°45.2'	S 17°23.5'	6°14.1'	N 24°35.2'			
17	120°45.2'	75°52.2'	N 17°00.6'	64°40.4'	N 19°42.3'	149°06.0'	S 12°27.3'	164°47.6'	S 17°23.5'	21°14.9'	N 24°35.1'			
18	135°47.7'	90°52.2'	N 17°01.3'	79°39.7'	N 19°43.0'	164°08.1'	S 12°27.2'	179°50.0'	S 17°23.5'	36°15.7'	N 24°35.0'			
19	150°50.2'	105°52.2'	N 17°02.0'	94°39.0'	N 19°43.8'	179°10.3'	S 12°27.1'	194°52.4'	S 17°23.5'	51°16.4'	N 24°34.8'			
20	165°52.6'	120°52.3'	N 17°02.6'	109°38.4'	N 19°44.6'	194°12.4'	S 12°27.0'	209°54.8'	S 17°23.5'	66°17.2'	N 24°34.7'			
21	180°55.1'	135°52.3'	N 17°03.3'	124°37.7'	N 19°45.4'	209°14.6'	S 12°26.9'	224°57.2'	S 17°23.5'	81°18.0'	N 24°34.6'			
22	195°57.6'	150°52.3'	N 17°04.0'	139°37.0'	N 19°46.2'	224°16.7'	S 12°26.8'	239°59.6'	S 17°23.5'	96°18.8'	N 24°34.5'			
23	211°00.0'	165°52.4'	N 17°04.7'	154°36.3'	N 19°46.9'	239°18.9'	S 12°26.7'	255°02.0'	S 17°23.5'	111°19.6'	N 24°34.4'			
		SD 15.8' d 0.7'		v -0.7' d 0.8'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 33 s		12 h 41 m		7 h 5 m		6 h 3 m		15 h 35 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	228°35.2'	S 7°05.4'	15.4'	12.8'	55.0'	52°53.8'	25°00.4'	25°06.6'	40°49.7'	60°28.3'	103°21.6'	103°53.9'	107°05.1'
1	243°09.6'	S 6°52.7'	15.5'	12.8'	55.0'	52°25.6'	25°23.8'	25°36.4'	41°20.0'	60°52.1'	103°52.1'	104°15.5'	107°25.5'
2	257°44.1'	S 6°39.8'	15.5'	12.8'	55.0'	51°57.5'	25°47.4'	26°06.3'	41°50.4'	61°15.9'	104°22.6'	104°37.0'	107°45.9'
3	272°18.6'	S 6°27.0'	15.6'	12.8'	55.0'	51°29.3'	26°11.2'	26°36.1'	42°20.8'	61°39.8'	104°53.1'	104°58.6'	108°06.1'
4	286°53.2'	S 6°14.2'	15.6'	12.9'	54.9'	51°01.2'	26°35.3'	27°05.9'	42°51.1'	62°03.7'	105°23.5'	105°20.0'	108°26.3'
5	301°27.8'	S 6°01.3'	15.6'	12.9'	54.9'	50°33.1'	26°59.5'	27°35.7'	43°21.4'	62°27.6'	105°53.9'	105°41.4'	108°46.5'
6	316°02.4'	S 5°48.4'	15.7'	12.9'	54.9'	50°05.0'	27°23.9'	28°05.5'	43°51.7'	62°51.6'	106°24.4'	106°02.8'	109°06.5'
7	330°37.1'	S 5°35.5'	15.7'	12.9'	54.9'	49°36.9'	27°48.5'	28°35.3'	44°22.0'	63°15.6'	106°54.8'	106°24.1'	109°26.6'
8	345°11.8'	S 5°22.6'	15.8'	12.9'	54.9'	49°08.9'	28°13.2'	29°05.1'	44°52.3'	63°39.7'	107°25.1'	106°45.4'	109°46.5'
9	359°46.6'	S 5°09.7'	15.8'	12.9'	54.8'	48°40.9'	28°38.1'	29°34.9'	45°22.5'	64°03.8'	107°55.5'	107°06.6'	110°06.4'
10	14°21.4'	S 4°56.8'	15.8'	12.9'	54.8'	48°12.8'	29°03.1'	30°04.6'	45°52.7'	64°27.9'	108°25.8'	107°27.7'	110°26.2'
11	28°56.2'	S 4°43.8'	15.9'	13.0'	54.8'	47°44.9'	29°28.3'	30°34.4'	46°23.0'	64°52.1'	108°56.2'	107°48.8'	110°45.9'
12	43°31.0'	S 4°30.9'	15.9'	13.0'	54.8'	47°16.9'	29°53.6'	31°04.2'	46°53.2'	65°16.3'	109°26.5'	108°09.8'	111°05.6'
13	58°05.9'	S 4°17.9'	15.9'	13.0'	54.8'	46°48.9'	30°19.1'	31°33.9'	47°23.4'	65°40.5'	109°56.7'	108°30.8'	111°25.2'
14	72°40.8'	S 4°04.9'	16.0'	13.0'	54.8'	46°21.0'	30°44.6'	32°03.7'	47°53.5'	66°04.8'	110°27.0'	108°51.7'	111°44.7'
15	87°15.8'	S 3°52.0'	16.0'	13.0'	54.7'	45°53.1'	31°10.3'	32°33.4'	48°23.7'	66°29.1'	110°57.3'	109°12.5'	112°04.1'
16	101°50.8'	S 3°39.0'	16.0'	13.0'	54.7'	45°25.2'	31°36.1'	33°03.1'	48°53.8'	66°53.4'	111°27.5'	109°33.3'	112°23.5'
17	116°25.8'	S 3°26.0'	16.0'	13.0'	54.7'	44°57.3'	32°02.0'	33°32.9'	49°24.0'	67°17.8'	111°57.7'	109°54.1'	112°42.8'
18	131°00.8'	S 3°13.0'	16.1'	13.0'	54.7'	44°29.4'	32°28.0'	34°02.6'	49°54.1'	67°42.1'	112°27.9'	110°14.7'	113°02.0'
19	145°35.9'	S 2°60.0'	16.1'	13.0'	54.7'	44°01.6'	32°54.1'	34°32.3'	50°24.2'	68°06.5'	112°58.1'	110°35.3'	113°21.2'
20	160°11.0'	S 2°47.0'	16.1'	13.0'	54.7'	43°33.7'	33°20.2'	35°02.0'	50°54.3'	68°30.9'	113°28.3'	110°55.9'	113°40.2'
21	174°46.1'	S 2°33.9'	16.1'	13.0'	54.6'	43°05.9'	33°46.5'	35°31.7'	51°24.4'	68°55.4'	113°58.4'	111°16.3'	113°59.2'
22	189°21.2'	S 2°20.9'	16.2'	13.0'	54.6'	42°38.1'	34°12.9'	36°01.3'	51°54.4'	69°19.9'	114°28.5'	111°36.8'	114°18.1'
23	203°56.4'	S 2°07.9'	16.2'	13.0'	54.6'	42°10.3'	34°39.3'	36°31.0'	52°24.5'	69°44.3'	114°58.6'	111°57.1'	114°36.9'
Mer. pass.		9 h 1 m SD 15.0'		phase 20%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°53.6'	N 89°21.1'
Rigel Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	226°02.5'	180°52.4'	N 17°05.4'	169°35.6'	N 19°47.7'	254°21.1'	S 12°26.6'	270°04.4'	S 17°23.4'	126°20.4'	N 24°34.3'			
1	241°05.0'	195°52.4'	N 17°06.0'	184°34.8'	N 19°48.5'	269°23.2'	S 12°26.5'	285°06.8'	S 17°23.4'	141°21.2'	N 24°34.2'			
2	256°07.4'	210°52.5'	N 17°06.7'	199°34.1'	N 19°49.3'	284°25.4'	S 12°26.4'	300°09.2'	S 17°23.4'	156°22.0'	N 24°34.1'			
3	271°09.9'	225°52.5'	N 17°07.4'	214°33.4'	N 19°50.0'	299°27.5'	S 12°26.3'	315°11.6'	S 17°23.4'	171°22.8'	N 24°34.0'			
4	286°12.3'	240°52.5'	N 17°08.1'	229°32.7'	N 19°50.8'	314°29.7'	S 12°26.2'	330°14.0'	S 17°23.4'	186°23.6'	N 24°33.9'			
5	301°14.8'	255°52.6'	N 17°08.7'	244°32.0'	N 19°51.6'	329°31.8'	S 12°26.1'	345°16.4'	S 17°23.4'	201°24.4'	N 24°33.8'			
6	316°17.3'	270°52.6'	N 17°09.4'	259°31.3'	N 19°52.3'	344°34.0'	S 12°26.0'	0°18.8'	S 17°23.4'	216°25.2'	N 24°33.7'			
7	331°19.7'	285°52.6'	N 17°10.1'	274°30.6'	N 19°53.1'	359°36.2'	S 12°25.9'	15°21.2'	S 17°23.4'	231°26.0'	N 24°33.5'			
8	346°22.2'	300°52.7'	N 17°10.8'	289°29.9'	N 19°53.9'	14°38.3'	S 12°25.8'	30°23.6'	S 17°23.3'	246°26.8'	N 24°33.4'			
9	1°24.7'	315°52.7'	N 17°11.4'	304°29.2'	N 19°54.7'	29°40.5'	S 12°25.7'	45°26.0'	S 17°23.3'	261°27.6'	N 24°33.3'			
10	16°27.1'	330°52.7'	N 17°12.1'	319°28.5'	N 19°55.4'	44°42.6'	S 12°25.6'	60°28.4'	S 17°23.3'	276°28.3'	N 24°33.2'			
11	31°29.6'	345°52.8'	N 17°12.8'	334°27.8'	N 19°56.2'	59°44.8'	S 12°25.5'	75°30.8'	S 17°23.3'	291°29.1'	N 24°33.1'			
12	46°32.1'	0°52.8'	N 17°13.5'	349°27.1'	N 19°57.0'	74°47.0'	S 12°25.4'	90°33.2'	S 17°23.3'	306°29.9'	N 24°33.0'			
13	61°34.5'	15°52.8'	N 17°14.1'	4°26.4'	N 19°57.7'	89°49.1'	S 12°25.3'	105°35.6'	S 17°23.3'	321°30.7'	N 24°32.9'			
14	76°37.0'	30°52.9'	N 17°14.8'	19°25.7'	N 19°58.5'	104°51.3'	S 12°25.2'	120°38.0'	S 17°23.3'	336°31.5'	N 24°32.8'			
15	91°39.5'	45°52.9'	N 17°15.5'	34°25.0'	N 19°59.2'	119°53.5'	S 12°25.1'	135°40.4'	S 17°23.3'	351°32.3'	N 24°32.7'			
16	106°41.9'	60°52.9'	N 17°16.2'	49°24.3'	N 20°00.0'	134°55.6'	S 12°25.0'	150°42.8'	S 17°23.2'	6°33.1'	N 24°32.5'			
17	121°44.4'	75°53.0'	N 17°16.8'	64°23.6'	N 20°00.8'	149°57.8'	S 12°24.9'	165°45.2'	S 17°23.2'	21°33.9'	N 24°32.4'			
18	136°46.8'	90°53.0'	N 17°17.5'	79°22.9'	N 20°01.5'	164°59.9'	S 12°24.8'	180°47.6'	S 17°23.2'	36°34.7'	N 24°32.3'			
19	151°49.3'	105°53.0'	N 17°18.2'	94°22.1'	N 20°02.3'	180°02.1'	S 12°24.7'	195°50.0'	S 17°23.2'	51°35.5'	N 24°32.2'			
20	166°51.8'	120°53.0'	N 17°18.8'	109°21.4'	N 20°03.0'	195°04.3'	S 12°24.6'	210°52.4'	S 17°23.2'	66°36.3'	N 24°32.1'			
21	181°54.2'	135°53.1'	N 17°19.5'	124°20.7'	N 20°03.8'	210°06.4'	S 12°24.5'	225°54.9'	S 17°23.2'	81°37.1'	N 24°32.0'			
22	196°56.7'	150°53.1'	N 17°20.2'	139°20.0'	N 20°04.5'	225°08.6'	S 12°24.4'	240°57.3'	S 17°23.2'	96°37.9'	N 24°31.9'			
23	211°59.2'	165°53.1'	N 17°20.8'	154°19.3'	N 20°05.3'	240°10.8'	S 12°24.3'	255°59.7'	S 17°23.2'	111°38.7'	N 24°31.7'			
		SD 15.8' d 0.7'		v -0.7' d 0.8'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 30 s		12 h 42 m		7 h 2 m		5 h 59 m		15 h 34 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Rigel Kent	+Hadar	+Antares
0	218°31.5'	S 1°54.9'	16.2'	13.0'	54.6'	41°42.5'	35°05.8'	37°00.7'	52°54.5'	70°08.9'	112°17.4'	114°55.7'	115°28.7'
1	233°06.7'	S 1°41.8'	16.2'	13.0'	54.6'	41°14.8'	35°32.4'	37°30.3'	53°24.5'	70°33.4'	112°37.6'	115°14.3'	115°58.8'
2	247°42.0'	S 1°28.8'	16.2'	13.0'	54.6'	40°47.0'	35°59.0'	37°60.0'	53°54.6'	70°57.9'	112°57.7'	115°32.9'	116°28.9'
3	262°17.2'	S 1°15.8'	16.3'	13.0'	54.5'	40°19.3'	36°25.7'	38°29.6'	54°24.6'	71°22.5'	113°17.7'	115°51.3'	116°58.9'
4	276°52.5'	S 1°02.8'	16.3'	13.0'	54.5'		36°52.5'	38°59.2'	54°54.5'	71°47.1'	113°37.7'	116°09.7'	117°29.0'
5	291°27.7'	S 0°49.8'	16.3'	13.0'	54.5'		37°19.4'	39°28.8'	55°24.5'	72°11.7'	113°57.6'	116°28.0'	117°59.0'
6	306°03.0'	S 0°36.7'	16.3'	13.0'	54.5'		37°46.3'	39°58.4'	55°54.5'	72°36.3'	114°17.5'	116°46.2'	118°29.0'
7	320°38.3'	S 0°23.7'	16.3'	13.0'	54.5'		38°13.2'	40°28.0'	56°24.4'	73°01.0'	114°37.2'	117°04.3'	118°59.0'
8	335°13.6'	S 0°10.7'	16.3'	13.0'	54.5'		38°40.2'	40°57.6'	56°54.4'	73°25.6'	114°56.9'	117°22.3'	119°29.0'
9	349°49.0'	N 0°02.3'	16.3'	13.0'	54.5'		39°07.3'	41°27.2'	57°24.3'	73°50.3'	115°16.5'	117°40.3'	119°58.9'
10	4°24.3'	N 0°15.3'	16.4'	13.0'	54.4'		39°34.4'	41°56.8'	57°54.2'	74°15.0'	115°36.0'	117°58.1'	
11	18°59.6'	N 0°28.3'	16.4'	13.0'	54.4'		40°01.6'	42°26.3'	58°24.1'	74°39.7'	115°55.5'	118°15.8'	
12	33°35.0'	N 0°41.3'	16.4'	13.0'	54.4'		40°28.8'	42°55.9'	58°54.0'	75°04.4'	116°14.8'	118°33.4'	
13	48°10.4'	N 0°54.3'	16.4'	13.0'	54.4'		40°56.0'	43°25.4'	59°23.9'	75°29.1'	116°34.1'	118°51.0'	
14	62°45.8'	N 1°07.2'	16.4'	13.0'	54.4'		41°23.3'	43°55.0'	59°53.7'	75°53.9'	116°53.3'	119°08.4'	
15	77°21.1'	N 1°20.2'	16.4'	13.0'	54.4'		41°50.7'	44°24.5'	60°23.6'	76°18.6'	117°12.4'	119°25.7'	
16	91°56.5'	N 1°33.1'	16.4'	12.9'	54.4'		42°18.0'	44°54.0'	60°53.4'	76°43.4'	117°31.4'	119°42.9'	
17	106°31.9'	N 1°46.1'	16.4'	12.9'	54.3'		42°45.4'	45°23.5'	61°23.3'	77°08.1'	117°50.3'		
18	121°07.3'	N 1°59.0'	16.4'	12.9'	54.3'		43°12.9'	45°53.0'	61°53.1'	77°32.9'	118°09.1'		
19	135°42.7'	N 2°11.9'	16.4'	12.9'	54.3'		43°40.4'	46°22.5'	62°22.9'	77°57.7'	118°27.9'		
20	150°18.1'	N 2°24.8'	16.4'	12.9'	54.3'		44°07.9'	46°52.0'	62°52.7'	78°22.5'	118°46.5'		
21	164°53.5'	N 2°37.7'	16.4'	12.9'	54.3'		44°35.4'	47°21.5'	63°22.5'	78°47.3'	119°05.1'		
22	179°28.9'	N 2°50.6'	16.4'	12.9'	54.3'		45°03.0'	47°50.9'	63°52.3'	79°12.1'	119°23.5'		
23	194°04.3'	N 3°03.4'	16.4'	12.8'	54.3'		45°30.6'	48°20.4'	64°22.1'	79°36.9'	119°41.9'		
Mer. pass.		9 h 42 m SD 14.9'		phase 13%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°53.5'	N 89°21.1'
Rigel Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.8'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	227°01.6'	180°53.2'	N 17°21.5'	169°18.6'	N 20°06.1'	255°12.9'	S 12°24.2'	271°02.1'	S 17°23.2'	126°39.5'	N 24°31.6'			
1	242°04.1'	195°53.2'	N 17°22.2'	184°17.9'	N 20°06.8'	270°15.1'	S 12°24.1'	286°04.5'	S 17°23.1'	141°40.2'	N 24°31.5'			
2	257°06.6'	210°53.2'	N 17°22.8'	199°17.2'	N 20°07.6'	285°17.2'	S 12°24.0'	301°06.9'	S 17°23.1'	156°41.0'	N 24°31.4'			
3	272°09.0'	225°53.2'	N 17°23.5'	214°16.5'	N 20°08.3'	300°19.4'	S 12°23.9'	316°09.3'	S 17°23.1'	171°41.8'	N 24°31.3'			
4	287°11.5'	240°53.3'	N 17°24.2'	229°15.7'	N 20°09.1'	315°21.6'	S 12°23.8'	331°11.7'	S 17°23.1'	186°42.6'	N 24°31.2'			
5	302°13.9'	255°53.3'	N 17°24.8'	244°15.0'	N 20°09.8'	330°23.7'	S 12°23.7'	346°14.1'	S 17°23.1'	201°43.4'	N 24°31.1'			
6	317°16.4'	270°53.3'	N 17°25.5'	259°14.3'	N 20°10.6'	345°25.9'	S 12°23.6'	1°16.5'	S 17°23.1'	216°44.2'	N 24°30.9'			
7	332°18.9'	285°53.4'	N 17°26.2'	274°13.6'	N 20°11.3'	0°28.1'	S 12°23.5'	16°18.9'	S 17°23.1'	231°45.0'	N 24°30.8'			
8	347°21.3'	300°53.4'	N 17°26.8'	289°12.9'	N 20°12.1'	15°30.2'	S 12°23.4'	31°21.3'	S 17°23.1'	246°45.8'	N 24°30.7'			
9	2°23.8'	315°53.4'	N 17°27.5'	304°12.2'	N 20°12.8'	30°32.4'	S 12°23.3'	46°23.7'	S 17°23.1'	261°46.6'	N 24°30.6'			
10	17°26.3'	330°53.4'	N 17°28.1'	319°11.4'	N 20°13.5'	45°34.6'	S 12°23.2'	61°26.1'	S 17°23.0'	276°47.4'	N 24°30.5'			
11	32°28.7'	345°53.5'	N 17°28.8'	334°10.7'	N 20°14.3'	60°36.7'	S 12°23.1'	76°28.5'	S 17°23.0'	291°48.2'	N 24°30.3'			
12	47°31.2'	0°53.5'	N 17°29.5'	349°10.0'	N 20°15.0'	75°38.9'	S 12°23.0'	91°30.9'	S 17°23.0'	306°49.0'	N 24°30.2'			
13	62°33.7'	15°53.5'	N 17°30.1'	4°09.3'	N 20°15.8'	90°41.1'	S 12°22.9'	106°33.3'	S 17°23.0'	321°49.8'	N 24°30.1'			
14	77°36.1'	30°53.5'	N 17°30.8'	19°08.6'	N 20°16.5'	105°43.2'	S 12°22.8'	121°35.7'	S 17°23.0'	336°50.6'	N 24°30.0'			
15	92°38.6'	45°53.6'	N 17°31.4'	34°07.9'	N 20°17.2'	120°45.4'	S 12°22.7'	136°38.1'	S 17°23.0'	351°51.4'	N 24°29.9'			
16	107°41.1'	60°53.6'	N 17°32.1'	49°07.1'	N 20°18.0'	135°47.6'	S 12°22.6'	151°40.5'	S 17°23.0'	6°52.2'	N 24°29.7'			
17	122°43.5'	75°53.6'	N 17°32.8'	64°06.4'	N 20°18.7'	150°49.7'	S 12°22.5'	166°42.9'	S 17°23.0'	21°53.0'	N 24°29.6'			
18	137°46.0'	90°53.6'	N 17°33.4'	79°05.7'	N 20°19.5'	165°51.9'	S 12°22.4'	181°45.4'	S 17°23.0'	36°53.7'	N 24°29.5'			
19	152°48.4'	105°53.7'	N 17°34.1'	94°05.0'	N 20°20.2'	180°54.1'	S 12°22.3'	196°47.8'	S 17°23.0'	51°54.5'	N 24°29.4'			
20	167°50.9'	120°53.7'	N 17°34.7'	109°04.2'	N 20°20.9'	195°56.3'	S 12°22.2'	211°50.2'	S 17°22.9'	66°55.3'	N 24°29.3'			
21	182°53.4'	135°53.7'	N 17°35.4'	124°03.5'	N 20°21.7'	210°58.4'	S 12°22.1'	226°52.6'	S 17°22.9'	81°56.1'	N 24°29.1'			
22	197°55.8'	150°53.7'	N 17°36.0'	139°02.8'	N 20°22.4'	226°00.6'	S 12°22.0'	241°55.0'	S 17°22.9'	96°56.9'	N 24°29.0'			
23	212°58.3'	165°53.8'	N 17°36.7'	154°02.1'	N 20°23.1'	241°02.8'	S 12°21.9'	256°57.4'	S 17°22.9'	111°57.7'	N 24°28.9'			
		SD 15.8' d 0.7'		v -0.7' d 0.7'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 27 s		12 h 43 m		6 h 58 m		5 h 55 m		15 h 33 m				

h	Moon					Lunar distance			
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Saturn	+Altair
0	208°39.7'	N 3°16.3'	16.4'	12.8'	54.3'	45°58.2'	48°49.9'	64°51.8'	80°01.7'
1	223°15.1'	N 3°29.1'	16.4'	12.8'	54.3'	46°25.9'	49°19.3'	65°21.6'	80°26.6'
2	237°50.5'	N 3°41.9'	16.4'	12.8'	54.2'	46°53.6'	49°48.7'	65°51.3'	80°51.4'
3	252°25.9'	N 3°54.7'	16.4'	12.8'	54.2'	47°21.3'	50°18.2'	66°21.1'	81°16.2'
4	267°01.3'	N 4°07.5'	16.4'	12.8'	54.2'	47°49.0'	50°47.6'	66°50.8'	81°41.1'
5	281°36.7'	N 4°20.3'	16.4'	12.7'	54.2'	48°16.8'	51°17.0'	67°20.5'	82°05.9'
6	296°12.1'	N 4°33.0'	16.4'	12.7'	54.2'	48°44.6'	51°46.4'	67°50.2'	82°30.8'
7	310°47.5'	N 4°45.7'	16.4'	12.7'	54.2'	49°12.4'	52°15.8'	68°19.9'	82°55.6'
8	325°22.8'	N 4°58.4'	16.4'	12.7'	54.2'	49°40.2'	52°45.2'	68°49.6'	83°20.5'
9	339°58.2'	N 5°11.1'	16.3'	12.6'	54.2'	50°08.0'	53°14.6'	69°19.3'	83°45.3'
10	354°33.5'	N 5°23.7'	16.3'	12.6'	54.2'	50°35.9'	53°44.0'	69°49.0'	84°10.2'
11	9°08.9'	N 5°36.4'	16.3'	12.6'	54.2'	51°03.8'	54°13.4'	70°18.7'	84°35.0'
12	23°44.2'	N 5°49.0'	16.3'	12.6'	54.1'	51°31.7'	54°42.7'	70°48.3'	84°59.9'
13	38°19.5'	N 6°01.5'	16.3'	12.6'	54.1'	51°59.6'	55°12.1'	71°18.0'	85°24.7'
14	52°54.8'	N 6°14.1'	16.3'	12.5'	54.1'	52°27.5'	55°41.5'	71°47.7'	85°49.6'
15	67°30.0'	N 6°26.6'	16.3'	12.5'	54.1'	52°55.5'	56°10.8'	72°17.3'	86°14.5'
16	82°05.3'	N 6°39.1'	16.2'	12.5'	54.1'	53°23.5'	56°40.1'	72°46.9'	86°39.3'
17	96°40.6'	N 6°51.6'	16.2'	12.4'	54.1'	53°51.4'	57°09.5'	73°16.6'	87°04.2'
18	111°15.8'	N 7°04.0'	16.2'	12.4'	54.1'	54°19.4'	57°38.8'	73°46.2'	87°29.0'
19	125°51.0'	N 7°16.4'	16.2'	12.4'	54.1'	54°47.4'	58°08.1'	74°15.8'	87°53.9'
20	140°26.2'	N 7°28.8'	16.2'	12.4'	54.1'	55°15.5'	58°37.5'	74°45.4'	88°18.7'
21	155°01.4'	N 7°41.2'	16.2'	12.3'	54.1'	55°43.5'	59°06.8'	75°15.0'	88°43.6'
22	169°36.5'	N 7°53.5'	16.1'	12.3'	54.1'	56°11.6'	59°36.1'	75°44.6'	89°08.4'
23	184°11.7'	N 8°05.8'	16.1'	12.3'	54.0'	56°39.6'	60°05.4'	76°14.2'	89°33.2'
Mer. pass.		10 h 22 m SD 14.8'		phase 7%					

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°53.5'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'				

Monday 10 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	228°00.8'	180°53.8'	N 17°37.4'	169°01.4'	N 20°23.9'	256°04.9'	S 12°21.8'	271°59.8'	S 17°22.9'	126°58.5'	N 24°28.8'			
1	243°03.2'	195°53.8'	N 17°38.0'	184°00.6'	N 20°24.6'	271°07.1'	S 12°21.7'	287°02.2'	S 17°22.9'	141°59.3'	N 24°28.7'			
2	258°05.7'	210°53.8'	N 17°38.7'	198°59.9'	N 20°25.3'	286°09.3'	S 12°21.6'	302°04.6'	S 17°22.9'	157°00.1'	N 24°28.5'			
3	273°08.2'	225°53.8'	N 17°39.3'	213°59.2'	N 20°26.0'	301°11.4'	S 12°21.5'	317°07.0'	S 17°22.9'	172°00.9'	N 24°28.4'			
4	288°10.6'	240°53.9'	N 17°40.0'	228°58.5'	N 20°26.8'	316°13.6'	S 12°21.4'	332°09.4'	S 17°22.9'	187°01.7'	N 24°28.3'			
5	303°13.1'	255°53.9'	N 17°40.6'	243°57.7'	N 20°27.5'	331°15.8'	S 12°21.3'	347°11.8'	S 17°22.9'	202°02.5'	N 24°28.2'			
6	318°15.6'	270°53.9'	N 17°41.3'	258°57.0'	N 20°28.2'	346°18.0'	S 12°21.2'	2°14.2'	S 17°22.8'	217°03.3'	N 24°28.0'			
7	333°18.0'	285°53.9'	N 17°41.9'	273°56.3'	N 20°28.9'	1°20.1'	S 12°21.1'	17°16.7'	S 17°22.8'	232°04.1'	N 24°27.9'			
8	348°20.5'	300°53.9'	N 17°42.6'	288°55.6'	N 20°29.7'	16°22.3'	S 12°21.1'	32°19.1'	S 17°22.8'	247°04.9'	N 24°27.8'			
9	3°22.9'	315°54.0'	N 17°43.2'	303°54.8'	N 20°30.4'	31°24.5'	S 12°21.0'	47°21.5'	S 17°22.8'	262°05.7'	N 24°27.7'			
10	18°25.4'	330°54.0'	N 17°43.9'	318°54.1'	N 20°31.1'	46°26.6'	S 12°20.9'	62°23.9'	S 17°22.8'	277°06.5'	N 24°27.5'			
11	33°27.9'	345°54.0'	N 17°44.5'	333°53.4'	N 20°31.8'	61°28.8'	S 12°20.8'	77°26.3'	S 17°22.8'	292°07.3'	N 24°27.4'			
12	48°30.3'	0°54.0'	N 17°45.2'	348°52.6'	N 20°32.6'	76°31.0'	S 12°20.7'	92°28.7'	S 17°22.8'	307°08.0'	N 24°27.3'			
13	63°32.8'	15°54.0'	N 17°45.8'	3°51.9'	N 20°33.3'	91°33.2'	S 12°20.6'	107°31.1'	S 17°22.8'	322°08.8'	N 24°27.2'			
14	78°35.3'	30°54.1'	N 17°46.5'	18°51.2'	N 20°34.0'	106°35.3'	S 12°20.5'	122°33.5'	S 17°22.8'	337°09.6'	N 24°27.0'			
15	93°37.7'	45°54.1'	N 17°47.1'	33°50.4'	N 20°34.7'	121°37.5'	S 12°20.4'	137°35.9'	S 17°22.8'	352°10.4'	N 24°26.9'			
16	108°40.2'	60°54.1'	N 17°47.8'	48°49.7'	N 20°35.4'	136°39.7'	S 12°20.3'	152°38.3'	S 17°22.7'	7°11.2'	N 24°26.8'			
17	123°42.7'	75°54.1'	N 17°48.4'	63°49.0'	N 20°36.1'	151°41.9'	S 12°20.2'	167°40.7'	S 17°22.7'	22°12.0'	N 24°26.7'			
18	138°45.1'	90°54.1'	N 17°49.0'	78°48.3'	N 20°36.8'	166°44.0'	S 12°20.1'	182°43.2'	S 17°22.7'	37°12.8'	N 24°26.5'			
19	153°47.6'	105°54.2'	N 17°49.7'	93°47.5'	N 20°37.6'	181°46.2'	S 12°20.0'	197°45.6'	S 17°22.7'	52°13.6'	N 24°26.4'			
20	168°50.0'	120°54.2'	N 17°50.3'	108°46.8'	N 20°38.3'	196°48.4'	S 12°19.9'	212°48.0'	S 17°22.7'	67°14.4'	N 24°26.3'			
21	183°52.5'	135°54.2'	N 17°51.0'	123°46.1'	N 20°39.0'	211°50.6'	S 12°19.8'	227°50.4'	S 17°22.7'	82°15.2'	N 24°26.1'			
22	198°55.0'	150°54.2'	N 17°51.6'	138°45.3'	N 20°39.7'	226°52.7'	S 12°19.7'	242°52.8'	S 17°22.7'	97°16.0'	N 24°26.0'			
23	213°57.4'	165°54.2'	N 17°52.3'	153°44.6'	N 20°40.4'	241°54.9'	S 12°19.6'	257°55.2'	S 17°22.7'	112°16.8'	N 24°25.9'			
		SD 15.8' d 0.6'		v -0.7' d 0.7'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 25 s		12 h 45 m		6 h 55 m		5 h 51 m		15 h 31 m				

h	Moon				Lunar distance					
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Achernar	+Saturn	+Altair
0	198°46.8'	N 8°18.0'	16.1'	12.2'	54.0'	57°07.7'	60°34.7'		76°43.8'	89°58.1'
1	213°21.9'	N 8°30.3'	16.1'	12.2'	54.0'	57°35.8'	61°04.0'		77°13.4'	90°22.9'
2	227°56.9'	N 8°42.4'	16.0'	12.2'	54.0'	58°03.9'	61°33.3'		77°42.9'	90°47.7'
3	242°32.0'	N 8°54.6'	16.0'	12.1'	54.0'	58°32.0'	62°02.6'		78°12.5'	91°12.5'
4	257°07.0'	N 9°06.7'	16.0'	12.1'	54.0'	59°00.1'	62°31.9'		78°42.1'	91°37.3'
5	271°42.0'	N 9°18.8'	16.0'	12.0'	54.0'	59°28.3'	63°01.1'		79°11.6'	92°02.1'
6	286°16.9'	N 9°30.8'	15.9'	12.0'	54.0'	59°56.4'	63°30.4'		79°41.2'	92°26.9'
7	300°51.9'	N 9°42.8'	15.9'	12.0'	54.0'	60°24.6'	63°59.7'		80°10.7'	92°51.7'
8	315°26.8'	N 9°54.8'	15.9'	11.9'	54.0'	60°52.7'	64°28.9'		80°40.3'	93°16.5'
9	330°01.7'	N 10°06.7'	15.9'	11.9'	54.0'	61°20.9'	64°58.2'		81°09.8'	93°41.2'
10	344°36.5'	N 10°18.6'	15.8'	11.8'	54.0'	61°49.1'	65°27.5'		81°39.3'	94°06.0'
11	359°11.3'	N 10°30.5'	15.8'	11.8'	54.0'	62°17.3'	65°56.7'		82°08.9'	94°30.7'
12	13°46.1'	N 10°42.3'	15.8'	11.8'	54.0'	62°45.5'	66°26.0'		82°38.4'	94°55.5'
13	28°20.9'	N 10°54.0'	15.7'	11.7'	54.0'	63°13.7'	66°55.2'		83°07.9'	95°20.2'
14	42°55.6'	N 11°05.8'	15.7'	11.7'	54.0'	63°41.9'	67°24.4'		83°37.4'	95°44.9'
15	57°30.3'	N 11°17.4'	15.7'	11.6'	54.0'	64°10.1'	67°53.7'		84°06.9'	96°09.6'
16	72°05.0'	N 11°29.1'	15.6'	11.6'	53.9'	64°38.4'	68°22.9'		84°36.4'	96°34.3'
17	86°39.6'	N 11°40.6'	15.6'	11.5'	53.9'	65°06.6'	68°52.2'		85°05.9'	96°59.0'
18	101°14.2'	N 11°52.2'	15.6'	11.5'	53.9'	65°34.8'	69°21.4'		85°35.4'	97°23.6'
19	115°48.7'	N 12°03.7'	15.5'	11.4'	53.9'	66°03.1'	69°50.6'	70°04.1'	86°04.9'	97°48.3'
20	130°23.2'	N 12°15.1'	15.5'	11.4'	53.9'	66°31.4'	70°19.8'	70°19.2'	86°34.4'	98°12.9'
21	144°57.7'	N 12°26.5'	15.4'	11.3'	53.9'	66°59.6'	70°49.1'	70°34.3'	87°03.9'	98°37.5'
22	159°32.2'	N 12°37.9'	15.4'	11.3'	53.9'					
23	174°06.6'	N 12°49.2'	15.4'	11.2'	53.9'					
Mer. pass.		11 h 3 m SD 14.7'		phase 3%						

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.8'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.2'	Polaris	+2.0	315°53.4'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	228°59.9'	180°54.2'	N 17°52.9'	168°43.9'	N 20°41.1'	256°57.1'	S 12°19.5'	272°57.6'	S 17°22.7'	127°17.6'	N 24°25.8'			
1	244°02.4'	195°54.3'	N 17°53.5'	183°43.1'	N 20°41.8'	271°59.3'	S 12°19.4'	288°00.0'	S 17°22.7'	142°18.4'	N 24°25.6'			
2	259°04.8'	210°54.3'	N 17°54.2'	198°42.4'	N 20°42.5'	287°01.4'	S 12°19.3'	303°02.4'	S 17°22.7'	157°19.2'	N 24°25.5'			
3	274°07.3'	225°54.3'	N 17°54.8'	213°41.6'	N 20°43.2'	302°03.6'	S 12°19.2'	318°04.9'	S 17°22.6'	172°20.0'	N 24°25.4'			
4	289°09.8'	240°54.3'	N 17°55.5'	228°40.9'	N 20°43.9'	317°05.8'	S 12°19.1'	333°07.3'	S 17°22.6'	187°20.8'	N 24°25.2'			
5	304°12.2'	255°54.3'	N 17°56.1'	243°40.2'	N 20°44.6'	332°08.0'	S 12°19.0'	348°09.7'	S 17°22.6'	202°21.6'	N 24°25.1'			
6	319°14.7'	270°54.3'	N 17°56.7'	258°39.4'	N 20°45.3'	347°10.1'	S 12°18.9'	3°12.1'	S 17°22.6'	217°22.4'	N 24°25.0'			
7	334°17.2'	285°54.3'	N 17°57.4'	273°38.7'	N 20°46.0'	2°12.3'	S 12°18.9'	18°14.5'	S 17°22.6'	232°23.2'	N 24°24.8'			
8	349°19.6'	300°54.4'	N 17°58.0'	288°38.0'	N 20°46.7'	17°14.5'	S 12°18.8'	33°16.9'	S 17°22.6'	247°23.9'	N 24°24.7'			
9	4°22.1'	315°54.4'	N 17°58.7'	303°37.2'	N 20°47.4'	32°16.7'	S 12°18.7'	48°19.3'	S 17°22.6'	262°24.7'	N 24°24.6'			
10	19°24.5'	330°54.4'	N 17°59.3'	318°36.5'	N 20°48.1'	47°18.9'	S 12°18.6'	63°21.7'	S 17°22.6'	277°25.5'	N 24°24.4'			
11	34°27.0'	345°54.4'	N 17°59.9'	333°35.7'	N 20°48.8'	62°21.0'	S 12°18.5'	78°24.2'	S 17°22.6'	292°26.3'	N 24°24.3'			
12	49°29.5'	0°54.4'	N 18°00.6'	348°35.0'	N 20°49.5'	77°23.2'	S 12°18.4'	93°26.6'	S 17°22.6'	307°27.1'	N 24°24.2'			
13	64°31.9'	15°54.4'	N 18°01.2'	3°34.3'	N 20°50.2'	92°25.4'	S 12°18.3'	108°29.0'	S 17°22.6'	322°27.9'	N 24°24.0'			
14	79°34.4'	30°54.4'	N 18°01.8'	18°33.5'	N 20°50.9'	107°27.6'	S 12°18.2'	123°31.4'	S 17°22.6'	337°28.7'	N 24°23.9'			
15	94°36.9'	45°54.5'	N 18°02.5'	33°32.8'	N 20°51.6'	122°29.7'	S 12°18.1'	138°33.8'	S 17°22.5'	352°29.5'	N 24°23.8'			
16	109°39.3'	60°54.5'	N 18°03.1'	48°32.0'	N 20°52.3'	137°31.9'	S 12°18.0'	153°36.2'	S 17°22.5'	7°30.3'	N 24°23.6'			
17	124°41.8'	75°54.5'	N 18°03.7'	63°31.3'	N 20°53.0'	152°34.1'	S 12°17.9'	168°38.6'	S 17°22.5'	22°31.1'	N 24°23.5'			
18	139°44.3'	90°54.5'	N 18°04.4'	78°30.5'	N 20°53.7'	167°36.3'	S 12°17.8'	183°41.1'	S 17°22.5'	37°31.9'	N 24°23.4'			
19	154°46.7'	105°54.5'	N 18°05.0'	93°29.8'	N 20°54.4'	182°38.5'	S 12°17.7'	198°43.5'	S 17°22.5'	52°32.7'	N 24°23.2'			
20	169°49.2'	120°54.5'	N 18°05.6'	108°29.1'	N 20°55.1'	197°40.7'	S 12°17.6'	213°45.9'	S 17°22.5'	67°33.5'	N 24°23.1'			
21	184°51.7'	135°54.5'	N 18°06.3'	123°28.3'	N 20°55.7'	212°42.8'	S 12°17.5'	228°48.3'	S 17°22.5'	82°34.3'	N 24°23.0'			
22	199°54.1'	150°54.5'	N 18°06.9'	138°27.6'	N 20°56.4'	227°45.0'	S 12°17.4'	243°50.7'	S 17°22.5'	97°35.1'	N 24°22.8'			
23	214°56.6'	165°54.5'	N 18°07.5'	153°26.8'	N 20°57.1'	242°47.2'	S 12°17.3'	258°53.1'	S 17°22.5'	112°35.9'	N 24°22.7'			
		SD 15.8'	d 0.6'	v -0.7'	d 0.7'	v 2.2'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.1'			
Mer. pass.		11 h 56 m 23 s		12 h 46 m		6 h 51 m		5 h 47 m		15 h 30 m				

h	Moon				
	GHA	dec	v	d	HP
0	188°40.9'	N 13°00.4'	15.3'	11.2'	53.9'
1	203°15.3'	N 13°11.6'	15.3'	11.1'	53.9'
2	217°49.5'	N 13°22.7'	15.2'	11.1'	53.9'
3	232°23.8'	N 13°33.8'	15.2'	11.0'	53.9'
4	246°58.0'	N 13°44.9'	15.2'	11.0'	53.9'
5	261°32.2'	N 13°55.9'	15.1'	10.9'	53.9'
6	276°06.3'	N 14°06.8'	15.1'	10.9'	53.9'
7	290°40.4'	N 14°17.7'	15.0'	10.8'	53.9'
8	305°14.4'	N 14°28.5'	15.0'	10.8'	53.9'
9	319°48.4'	N 14°39.2'	14.9'	10.7'	53.9'
10	334°22.3'	N 14°49.9'	14.9'	10.6'	53.9'
11	348°56.2'	N 15°00.6'	14.9'	10.6'	53.9'
12	3°30.1'	N 15°11.1'	14.8'	10.5'	53.9'
13	18°03.9'	N 15°21.7'	14.8'	10.5'	53.9'
14	32°37.6'	N 15°32.1'	14.7'	10.4'	53.9'
15	47°11.3'	N 15°42.5'	14.7'	10.3'	53.9'
16	61°45.0'	N 15°52.8'	14.6'	10.3'	53.9'
17	76°18.6'	N 16°03.1'	14.6'	10.2'	53.9'
18	90°52.2'	N 16°13.3'	14.5'	10.1'	53.9'
19	105°25.7'	N 16°23.5'	14.5'	10.1'	53.9'
20	119°59.2'	N 16°33.5'	14.4'	10.0'	53.9'
21	134°32.6'	N 16°43.5'	14.4'	9.9'	53.9'
22	149°06.0'	N 16°53.5'	14.3'	9.9'	53.9'
23	163°39.3'	N 17°03.3'	14.3'	9.8'	53.9'
Mer. pass.	11 h 46 m SD 14.7'	phase 1%			

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°53.3'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	229°59.0'	180°54.6'	N 18°08.2'	168°26.1'	N 20°57.8'	257°49.4'	S 12°17.3'	273°55.6'	S 17°22.5'	127°36.7'	N 24°22.6'			
1	245°01.5'	195°54.6'	N 18°08.8'	183°25.3'	N 20°58.5'	272°51.6'	S 12°17.2'	288°58.0'	S 17°22.5'	142°37.5'	N 24°22.4'			
2	260°04.0'	210°54.6'	N 18°09.4'	198°24.6'	N 20°59.2'	287°53.7'	S 12°17.1'	304°00.4'	S 17°22.5'	157°38.3'	N 24°22.3'			
3	275°06.4'	225°54.6'	N 18°10.0'	213°23.8'	N 20°59.8'	302°55.9'	S 12°17.0'	319°02.8'	S 17°22.5'	172°39.1'	N 24°22.2'			
4	290°08.9'	240°54.6'	N 18°10.7'	228°23.1'	N 21°00.5'	317°58.1'	S 12°16.9'	334°05.2'	S 17°22.4'	187°39.9'	N 24°22.0'			
5	305°11.4'	255°54.6'	N 18°11.3'	243°22.3'	N 21°01.2'	333°00.3'	S 12°16.8'	349°07.6'	S 17°22.4'	202°40.7'	N 24°21.9'			
6	320°13.8'	270°54.6'	N 18°11.9'	258°21.6'	N 21°01.9'	348°02.5'	S 12°16.7'	4°10.1'	S 17°22.4'	217°41.5'	N 24°21.7'			
7	335°16.3'	285°54.6'	N 18°12.6'	273°20.8'	N 21°02.6'	3°04.7'	S 12°16.6'	19°12.5'	S 17°22.4'	232°42.2'	N 24°21.6'			
8	350°18.8'	300°54.6'	N 18°13.2'	288°20.1'	N 21°03.2'	18°06.8'	S 12°16.5'	34°14.9'	S 17°22.4'	247°43.0'	N 24°21.5'			
9	5°21.2'	315°54.6'	N 18°13.8'	303°19.3'	N 21°03.9'	33°09.0'	S 12°16.4'	49°17.3'	S 17°22.4'	262°43.8'	N 24°21.3'			
10	20°23.7'	330°54.7'	N 18°14.4'	318°18.6'	N 21°04.6'	48°11.2'	S 12°16.3'	64°19.7'	S 17°22.4'	277°44.6'	N 24°21.2'			
11	35°26.1'	345°54.7'	N 18°15.1'	333°17.8'	N 21°05.2'	63°13.4'	S 12°16.2'	79°22.1'	S 17°22.4'	292°45.4'	N 24°21.0'			
12	50°28.6'	0°54.7'	N 18°15.7'	348°17.1'	N 21°05.9'	78°15.6'	S 12°16.1'	94°24.6'	S 17°22.4'	307°46.2'	N 24°20.9'			
13	65°31.1'	15°54.7'	N 18°16.3'	3°16.3'	N 21°06.6'	93°17.8'	S 12°16.1'	109°27.0'	S 17°22.4'	322°47.0'	N 24°20.8'			
14	80°33.5'	30°54.7'	N 18°16.9'	18°15.6'	N 21°07.3'	108°20.0'	S 12°16.0'	124°29.4'	S 17°22.4'	337°47.8'	N 24°20.6'			
15	95°36.0'	45°54.7'	N 18°17.5'	33°14.8'	N 21°07.9'	123°22.1'	S 12°15.9'	139°31.8'	S 17°22.4'	352°48.6'	N 24°20.5'			
16	110°38.5'	60°54.7'	N 18°18.2'	48°14.1'	N 21°08.6'	138°24.3'	S 12°15.8'	154°34.2'	S 17°22.4'	7°49.4'	N 24°20.3'			
17	125°40.9'	75°54.7'	N 18°18.8'	63°13.3'	N 21°09.3'	153°26.5'	S 12°15.7'	169°36.6'	S 17°22.3'	22°50.2'	N 24°20.2'			
18	140°43.4'	90°54.7'	N 18°19.4'	78°12.6'	N 21°09.9'	168°28.7'	S 12°15.6'	184°39.1'	S 17°22.3'	37°51.0'	N 24°20.1'			
19	155°45.9'	105°54.7'	N 18°20.0'	93°11.8'	N 21°10.6'	183°30.9'	S 12°15.5'	199°41.5'	S 17°22.3'	52°51.8'	N 24°19.9'			
20	170°48.3'	120°54.7'	N 18°20.6'	108°11.1'	N 21°11.3'	198°33.1'	S 12°15.4'	214°43.9'	S 17°22.3'	67°52.6'	N 24°19.8'			
21	185°50.8'	135°54.7'	N 18°21.3'	123°10.3'	N 21°11.9'	213°35.3'	S 12°15.3'	229°46.3'	S 17°22.3'	82°53.4'	N 24°19.6'			
22	200°53.3'	150°54.7'	N 18°21.9'	138°09.6'	N 21°12.6'	228°37.4'	S 12°15.2'	244°48.7'	S 17°22.3'	97°54.2'	N 24°19.5'			
23	215°55.7'	165°54.7'	N 18°22.5'	153°08.8'	N 21°13.2'	243°39.6'	S 12°15.1'	259°51.2'	S 17°22.3'	112°55.0'	N 24°19.3'			
		SD 15.8' d 0.6'		v -0.8' d 0.7'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 22 s		12 h 47 m		6 h 48 m		5 h 43 m		15 h 29 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Sirius	-Betelgeuse	-Capella	-Aldebaran	-Venus
0	178°12.6'	N 17°13.1'	14.2'	9.7'	53.9'								
1	192°45.8'	N 17°22.9'	14.2'	9.7'	53.9'								
2	207°18.9'	N 17°32.5'	14.1'	9.6'	53.9'								
3	221°52.0'	N 17°42.1'	14.1'	9.5'	53.9'								
4	236°25.1'	N 17°51.6'	14.0'	9.4'	53.9'								
5	250°58.1'	N 18°01.1'	14.0'	9.4'	53.9'								
6	265°31.1'	N 18°10.4'	13.9'	9.3'	53.9'								
7	280°04.0'	N 18°19.7'	13.8'	9.2'	53.9'								
8	294°36.8'	N 18°29.0'	13.8'	9.1'	53.9'								
9	309°09.6'	N 18°38.1'	13.7'	9.1'	53.9'								
10	323°42.3'	N 18°47.2'	13.7'	9.0'	53.9'								
11	338°15.0'	N 18°56.2'	13.6'	8.9'	53.9'								
12	352°47.6'	N 19°05.1'	13.6'	8.8'	53.9'								
13	7°20.2'	N 19°13.9'	13.5'	8.7'	53.9'								
14	21°52.7'	N 19°22.6'	13.5'	8.7'	53.9'								
15	36°25.2'	N 19°31.3'	13.4'	8.6'	53.9'								
16	50°57.6'	N 19°39.9'	13.3'	8.5'	53.9'								
17	65°29.9'	N 19°48.4'	13.3'	8.4'	53.9'								
18	80°02.2'	N 19°56.8'	13.2'	8.3'	53.9'	87°32.0'	54°51.7'	51°20.3'	54°21.1'	30°13.4'	30°19.5'	8°50.1'	2°06.0'
19	94°34.5'	N 20°05.1'	13.2'	8.2'	53.9'	87°02.5'	54°24.7'	50°50.8'	54°04.7'	29°49.8'	29°59.5'	8°27.0'	
20	109°06.7'	N 20°13.4'	13.1'	8.2'	53.9'	86°33.0'	53°57.8'	50°21.2'	53°48.3'	29°26.4'	29°39.8'		
21	123°38.8'	N 20°21.6'	13.1'	8.1'	53.9'	86°03.5'	53°30.9'	49°51.7'	53°32.1'	29°03.2'	29°20.2'		
22	138°10.9'	N 20°29.6'	13.0'	8.0'	53.9'	85°33.9'	53°04.1'	49°22.2'	53°16.0'	28°40.1'	29°01.0'		
23	152°42.9'	N 20°37.6'	13.0'	7.9'	53.9'	85°04.4'	52°37.3'	48°52.6'	53°00.1'	28°17.3'	28°42.0'		
Mer. pass.		12 h 30 m SD 14.7'		phase 0%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec	
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'	
Deneb	+1.2	49°27.7'	N 45°21.1'	Acrux	+0.8	173°02.8'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'	
Altair	+0.8	62°02.7'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'	
Vega	+0.0	80°35.0'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'	
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°53.1'	N 89°21.1'	
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'	
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'					
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'					

Thursday 13 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	230°58.2'	180°54.7'	N 18°23.1'	168°08.0'	N 21°13.9'	258°41.8'	S 12°15.0'	274°53.6'	S 17°22.3'	127°55.8'	N 24°19.2'			
1	246°00.6'	195°54.7'	N 18°23.7'	183°07.3'	N 21°14.6'	273°44.0'	S 12°15.0'	289°56.0'	S 17°22.3'	142°56.6'	N 24°19.1'			
2	261°03.1'	210°54.7'	N 18°24.3'	198°06.5'	N 21°15.2'	288°46.2'	S 12°14.9'	304°58.4'	S 17°22.3'	157°57.4'	N 24°18.9'			
3	276°05.6'	225°54.7'	N 18°25.0'	213°05.8'	N 21°15.9'	303°48.4'	S 12°14.8'	320°00.8'	S 17°22.3'	172°58.2'	N 24°18.8'			
4	291°08.0'	240°54.8'	N 18°25.6'	228°05.0'	N 21°16.5'	318°50.6'	S 12°14.7'	335°03.3'	S 17°22.3'	187°59.0'	N 24°18.6'			
5	306°10.5'	255°54.8'	N 18°26.2'	243°04.3'	N 21°17.2'	333°52.8'	S 12°14.6'	350°05.7'	S 17°22.3'	202°59.8'	N 24°18.5'			
6	321°13.0'	270°54.8'	N 18°26.8'	258°03.5'	N 21°17.8'	348°55.0'	S 12°14.5'	5°08.1'	S 17°22.3'	218°00.6'	N 24°18.3'			
7	336°15.4'	285°54.8'	N 18°27.4'	273°02.7'	N 21°18.5'	3°57.1'	S 12°14.4'	20°10.5'	S 17°22.3'	233°01.4'	N 24°18.2'			
8	351°17.9'	300°54.8'	N 18°28.0'	288°02.0'	N 21°19.1'	18°59.3'	S 12°14.3'	35°12.9'	S 17°22.3'	248°02.2'	N 24°18.0'			
9	6°20.4'	315°54.8'	N 18°28.6'	303°01.2'	N 21°19.8'	34°01.5'	S 12°14.2'	50°15.4'	S 17°22.2'	263°03.0'	N 24°17.9'			
10	21°22.8'	330°54.8'	N 18°29.3'	318°00.5'	N 21°20.4'	49°03.7'	S 12°14.1'	65°17.8'	S 17°22.2'	278°03.8'	N 24°17.8'			
11	36°25.3'	345°54.8'	N 18°29.9'	332°59.7'	N 21°21.1'	64°05.9'	S 12°14.1'	80°20.2'	S 17°22.2'	293°04.6'	N 24°17.6'			
12	51°27.8'	0°54.8'	N 18°30.5'	347°58.9'	N 21°21.7'	79°08.1'	S 12°14.0'	95°22.6'	S 17°22.2'	308°05.3'	N 24°17.5'			
13	66°30.2'	15°54.8'	N 18°31.1'	2°58.2'	N 21°22.4'	94°10.3'	S 12°13.9'	110°25.1'	S 17°22.2'	323°06.1'	N 24°17.3'			
14	81°32.7'	30°54.8'	N 18°31.7'	17°57.4'	N 21°23.0'	109°12.5'	S 12°13.8'	125°27.5'	S 17°22.2'	338°06.9'	N 24°17.2'			
15	96°35.1'	45°54.8'	N 18°32.3'	32°56.6'	N 21°23.7'	124°14.7'	S 12°13.7'	140°29.9'	S 17°22.2'	353°07.7'	N 24°17.0'			
16	111°37.6'	60°54.8'	N 18°32.9'	47°55.9'	N 21°24.3'	139°16.9'	S 12°13.6'	155°32.3'	S 17°22.2'	8°08.5'	N 24°16.9'			
17	126°40.1'	75°54.8'	N 18°33.5'	62°55.1'	N 21°25.0'	154°19.1'	S 12°13.5'	170°34.7'	S 17°22.2'	23°09.3'	N 24°16.7'			
18	141°42.5'	90°54.8'	N 18°34.1'	77°54.4'	N 21°25.6'	169°21.2'	S 12°13.4'	185°37.2'	S 17°22.2'	38°10.1'	N 24°16.6'			
19	156°45.0'	105°54.8'	N 18°34.7'	92°53.6'	N 21°26.2'	184°23.4'	S 12°13.3'	200°39.6'	S 17°22.2'	53°10.9'	N 24°16.4'			
20	171°47.5'	120°54.8'	N 18°35.3'	107°52.8'	N 21°26.9'	199°25.6'	S 12°13.2'	215°42.0'	S 17°22.2'	68°11.7'	N 24°16.3'			
21	186°49.9'	135°54.8'	N 18°35.9'	122°52.1'	N 21°27.5'	214°27.8'	S 12°13.2'	230°44.4'	S 17°22.2'	83°12.5'	N 24°16.1'			
22	201°52.4'	150°54.8'	N 18°36.5'	137°51.3'	N 21°28.2'	229°30.0'	S 12°13.1'	245°46.9'	S 17°22.2'	98°13.3'	N 24°16.0'			
23	216°54.9'	165°54.8'	N 18°37.2'	152°50.5'	N 21°28.8'	244°32.2'	S 12°13.0'	260°49.3'	S 17°22.2'	113°14.1'	N 24°15.8'			
		SD 15.8' d 0.6'		v -0.8' d 0.6'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.1'				
Mer. pass.		11 h 56 m 22 s		12 h 48 m		6 h 44 m		5 h 40 m		15 h 27 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Sirius	-Procyon	-Mars	-Capella	-Betelgeuse	-Aldebaran	+Venus
0	167°14.8'	N 20°45.5'	12.9'	7.8'	53.9'	84°34.9'	52°44.3'	52°10.5'	36°22.3'	28°23.3'	27°54.6'		
1	181°46.7'	N 20°53.3'	12.8'	7.7'	53.9'	84°05.4'	52°28.6'	51°43.7'	35°54.2'	28°04.8'	27°32.1'		
2	196°18.6'	N 21°01.1'	12.8'	7.6'	53.9'	83°35.9'	52°13.1'	51°17.0'	35°26.1'	27°46.7'	27°09.8'		
3	210°50.4'	N 21°08.7'	12.7'	7.5'	53.9'	83°06.4'	51°57.7'	50°50.3'	34°58.0'	27°28.8'	26°47.7'		2°06.5'
4	225°22.1'	N 21°16.2'	12.7'	7.4'	53.9'	82°36.8'	51°42.4'	50°23.7'	34°30.0'	27°11.3'	26°25.9'		2°31.8'
5	239°53.8'	N 21°23.7'	12.6'	7.4'	54.0'	82°07.3'		49°57.0'	34°01.9'	26°54.1'	26°04.3'		2°57.6'
6	254°25.4'	N 21°31.0'	12.6'	7.3'	54.0'	81°37.8'		49°30.5'	33°33.8'	26°37.2'	25°42.9'		3°23.5'
7	268°56.9'	N 21°38.3'	12.5'	7.2'	54.0'	81°08.2'		49°03.9'	33°05.7'	26°20.7'	25°21.8'		3°49.6'
8	283°28.5'	N 21°45.5'	12.5'	7.1'	54.0'	80°38.7'		48°37.4'	32°37.6'	26°04.5'	25°01.0'		4°15.8'
9	297°59.9'	N 21°52.6'	12.4'	7.0'	54.0'	80°09.2'		48°11.0'	32°09.5'	25°48.7'	24°40.4'		4°42.0'
10	312°31.3'	N 21°59.5'	12.3'	6.9'	54.0'	79°39.6'		47°44.6'	31°41.4'	25°33.3'	24°20.1'		5°08.4'
11	327°02.6'	N 22°06.4'	12.3'	6.8'	54.0'	79°10.1'		47°18.2'	31°13.3'		24°00.2'		5°34.7'
12	341°33.9'	N 22°13.2'	12.2'	6.7'	54.0'	78°40.5'		46°51.9'	30°45.2'		23°40.5'		6°01.2'
13	356°05.2'	N 22°19.9'	12.2'	6.6'	54.0'	78°10.9'		46°25.6'	30°17.1'		23°21.2'		6°27.6'
14	10°36.3'	N 22°26.5'	12.1'	6.5'	54.0'	77°41.4'		45°59.4'	29°49.0'		23°02.2'		6°54.1'
15	25°07.5'	N 22°33.0'	12.1'	6.4'	54.0'	77°11.8'		45°33.2'	29°20.9'		22°43.6'		7°20.5'
16	39°38.5'	N 22°39.4'	12.0'	6.3'	54.0'	76°42.2'		45°07.1'	28°52.7'		22°25.3'		7°47.0'
17	54°09.5'	N 22°45.6'	12.0'	6.2'	54.0'	76°12.6'		44°41.0'	28°24.6'		22°07.4'		8°13.6'
18	68°40.5'	N 22°51.8'	11.9'	6.1'	54.0'	75°43.1'		44°15.0'	27°56.5'		21°50.0'		8°40.1'
19	83°11.4'	N 22°57.9'	11.8'	6.0'	54.0'	75°13.5'		43°49.0'	27°28.3'		21°32.9'		9°06.7'
20	97°42.2'	N 23°03.9'	11.8'	5.9'	54.0'	74°43.9'		43°23.1'	27°00.2'		21°16.3'		9°33.2'
21	112°13.0'	N 23°09.8'	11.7'	5.8'	54.0'	74°14.3'		42°57.3'	26°32.1'		21°00.2'	8°18.1'	9°59.8'
22	126°43.8'	N 23°15.6'	11.7'	5.7'	54.1'	73°44.6'		42°31.5'	26°03.9'		20°44.5'	8°41.0'	10°26.4'
23	141°14.5'	N 23°21.2'	11.6'	5.6'	54.1'	73°15.0'		42°05.8'	25°35.8'			9°04.6'	10°53.0'
Mer. pass.		13 h 16 m SD 14.7'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°53.0'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.7'				

Friday 14 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	231°57.3'	180°54.8'	N 18°37.8'	167°49.8'	N 21°29.4'	259°34.4'	S 12°12.9'	275°51.7'	S 17°22.2'	128°14.9'	N 24°15.7'			
1	246°59.8'	195°54.8'	N 18°38.4'	182°49.0'	N 21°30.1'	274°36.6'	S 12°12.8'	290°54.1'	S 17°22.2'	143°15.7'	N 24°15.5'			
2	262°02.3'	210°54.8'	N 18°39.0'	197°48.2'	N 21°30.7'	289°38.8'	S 12°12.7'	305°56.6'	S 17°22.1'	158°16.5'	N 24°15.4'			
3	277°04.7'	225°54.8'	N 18°39.6'	212°47.5'	N 21°31.3'	304°41.0'	S 12°12.6'	320°59.0'	S 17°22.1'	173°17.3'	N 24°15.2'			
4	292°07.2'	240°54.8'	N 18°40.2'	227°46.7'	N 21°32.0'	319°43.2'	S 12°12.5'	336°01.4'	S 17°22.1'	188°18.1'	N 24°15.1'			
5	307°09.6'	255°54.8'	N 18°40.8'	242°45.9'	N 21°32.6'	334°45.4'	S 12°12.4'	351°03.8'	S 17°22.1'	203°18.9'	N 24°14.9'			
6	322°12.1'	270°54.8'	N 18°41.4'	257°45.2'	N 21°33.2'	349°47.6'	S 12°12.4'	6°06.2'	S 17°22.1'	218°19.7'	N 24°14.8'			
7	337°14.6'	285°54.8'	N 18°42.0'	272°44.4'	N 21°33.8'	4°49.8'	S 12°12.3'	21°08.7'	S 17°22.1'	233°20.5'	N 24°14.6'			
8	352°17.0'	300°54.8'	N 18°42.6'	287°43.6'	N 21°34.5'	19°52.0'	S 12°12.2'	36°11.1'	S 17°22.1'	248°21.3'	N 24°14.5'			
9	7°19.5'	315°54.8'	N 18°43.2'	302°42.8'	N 21°35.1'	34°54.2'	S 12°12.1'	51°13.5'	S 17°22.1'	263°22.1'	N 24°14.3'			
10	22°22.0'	330°54.7'	N 18°43.8'	317°42.1'	N 21°35.7'	49°56.4'	S 12°12.0'	66°16.0'	S 17°22.1'	278°22.9'	N 24°14.2'			
11	37°24.4'	345°54.7'	N 18°44.4'	332°41.3'	N 21°36.3'	64°58.6'	S 12°11.9'	81°18.4'	S 17°22.1'	293°23.7'	N 24°14.0'			
12	52°26.9'	0°54.7'	N 18°45.0'	347°40.5'	N 21°37.0'	80°00.8'	S 12°11.8'	96°20.8'	S 17°22.1'	308°24.5'	N 24°13.8'			
13	67°29.4'	15°54.7'	N 18°45.6'	2°39.8'	N 21°37.6'	95°03.0'	S 12°11.7'	111°23.2'	S 17°22.1'	323°25.3'	N 24°13.7'			
14	82°31.8'	30°54.7'	N 18°46.2'	17°39.0'	N 21°38.2'	110°05.2'	S 12°11.7'	126°25.7'	S 17°22.1'	338°26.1'	N 24°13.5'			
15	97°34.3'	45°54.7'	N 18°46.7'	32°38.2'	N 21°38.8'	125°07.3'	S 12°11.6'	141°28.1'	S 17°22.1'	353°26.9'	N 24°13.4'			
16	112°36.7'	60°54.7'	N 18°47.3'	47°37.4'	N 21°39.4'	140°09.5'	S 12°11.5'	156°30.5'	S 17°22.1'	8°27.7'	N 24°13.2'			
17	127°39.2'	75°54.7'	N 18°47.9'	62°36.7'	N 21°40.1'	155°11.7'	S 12°11.4'	171°32.9'	S 17°22.1'	23°28.5'	N 24°13.1'			
18	142°41.7'	90°54.7'	N 18°48.5'	77°35.9'	N 21°40.7'	170°13.9'	S 12°11.3'	186°35.4'	S 17°22.1'	38°29.3'	N 24°12.9'			
19	157°44.1'	105°54.7'	N 18°49.1'	92°35.1'	N 21°41.3'	185°16.1'	S 12°11.2'	201°37.8'	S 17°22.1'	53°30.1'	N 24°12.8'			
20	172°46.6'	120°54.7'	N 18°49.7'	107°34.3'	N 21°41.9'	200°18.3'	S 12°11.1'	216°40.2'	S 17°22.1'	68°30.9'	N 24°12.6'			
21	187°49.1'	135°54.7'	N 18°50.3'	122°33.6'	N 21°42.5'	215°20.5'	S 12°11.0'	231°42.6'	S 17°22.1'	83°31.7'	N 24°12.4'			
22	202°51.5'	150°54.7'	N 18°50.9'	137°32.8'	N 21°43.1'	230°22.7'	S 12°11.0'	246°45.1'	S 17°22.1'	98°32.5'	N 24°12.3'			
23	217°54.0'	165°54.7'	N 18°51.5'	152°32.0'	N 21°43.7'	245°24.9'	S 12°10.9'	261°47.5'	S 17°22.0'	113°33.3'	N 24°12.1'			
		SD 15.8' d 0.6'		v -0.8' d 0.6'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.2'				
Mer. pass.		11 h 56 m 22 s		12 h 49 m		6 h 41 m		5 h 36 m		15 h 26 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux	-Mars	+Aldebaran	+Venus
0	155°45.1'	N 23°26.8'	11.6'	5.5'	54.1'			72°45.4'	41°40.2'	36°33.4'	25°07.6'	9°28.8'	11°19.6'
1	170°15.7'	N 23°32.2'	11.5'	5.4'	54.1'			72°15.8'	41°14.6'	36°03.8'	24°39.4'	9°53.4'	11°46.2'
2	184°46.2'	N 23°37.6'	11.5'	5.2'	54.1'			71°46.1'	40°49.1'	35°34.1'	24°11.3'	10°18.6'	12°12.9'
3	199°16.7'	N 23°42.8'	11.4'	5.1'	54.1'		119°39.4'	71°16.5'	40°23.6'	35°04.5'	23°43.1'	10°44.1'	12°39.5'
4	213°47.2'	N 23°48.0'	11.4'	5.0'	54.1'		119°14.0'	70°46.9'	39°58.3'	34°34.9'	23°14.9'	11°10.0'	13°06.2'
5	228°17.5'	N 23°53.0'	11.3'	4.9'	54.1'		118°48.5'	70°17.2'	39°33.0'	34°05.3'	22°46.7'	11°36.2'	13°32.9'
6	242°47.9'	N 23°57.9'	11.3'	4.8'	54.1'		118°22.9'	69°47.5'	39°07.8'	33°35.6'	22°18.5'	12°02.6'	13°59.5'
7	257°18.2'	N 24°02.7'	11.2'	4.7'	54.1'		117°57.4'	69°17.9'	38°42.7'	33°06.0'	21°50.3'	12°29.3'	14°26.2'
8	271°48.4'	N 24°07.4'	11.2'	4.6'	54.1'		117°31.8'	68°48.2'	38°17.7'	32°36.3'	21°22.1'	12°56.3'	14°52.9'
9	286°18.6'	N 24°12.0'	11.1'	4.5'	54.2'		117°06.1'	68°18.5'	37°52.7'	32°06.7'	20°53.9'	13°23.4'	15°19.6'
10	300°48.7'	N 24°16.5'	11.1'	4.4'	54.2'		116°40.4'	67°48.8'	37°27.9'	31°37.0'	20°25.7'	13°50.8'	15°46.3'
11	315°18.8'	N 24°20.8'	11.1'	4.2'	54.2'		116°14.6'	67°19.1'	37°03.1'	31°07.4'	19°57.5'	14°18.3'	16°13.1'
12	329°48.9'	N 24°25.1'	11.0'	4.1'	54.2'		115°48.9'	66°49.4'	36°38.5'	30°37.7'	19°29.3'	14°45.9'	16°39.8'
13	344°18.9'	N 24°29.2'	11.0'	4.0'	54.2'		115°23.0'	66°19.7'	36°14.0'	30°08.1'	19°01.0'	15°13.8'	17°06.5'
14	358°48.8'	N 24°33.2'	10.9'	3.9'	54.2'	119°52.6'	114°57.2'	65°50.0'	35°49.5'	29°38.4'	18°32.8'	15°41.7'	17°33.3'
15	13°18.8'	N 24°37.1'	10.9'	3.8'	54.2'	119°23.0'	114°31.3'	65°20.2'	35°25.2'	29°08.7'	18°04.6'	16°09.7'	18°00.1'
16	27°48.6'	N 24°40.9'	10.8'	3.7'	54.2'	118°53.3'	114°05.3'	64°50.5'	35°01.0'	28°39.0'	17°36.3'	16°37.9'	18°26.8'
17	42°18.5'	N 24°44.6'	10.8'	3.6'	54.2'	118°23.6'	113°39.4'	64°20.7'	34°36.9'	28°09.4'	17°08.1'	17°06.2'	18°53.6'
18	56°48.2'	N 24°48.1'	10.7'	3.4'	54.2'	117°54.0'	113°13.3'	63°51.0'	34°13.0'	27°39.7'	16°39.8'	17°34.5'	19°20.4'
19	71°18.0'	N 24°51.6'	10.7'	3.3'	54.3'	117°24.3'	112°47.3'	63°21.2'	33°49.1'	27°10.0'	16°11.6'	18°03.0'	19°47.2'
20	85°47.7'	N 24°54.9'	10.7'	3.2'	54.3'	116°54.6'	112°21.2'	62°51.4'	33°25.4'	26°40.3'	15°43.3'	18°31.5'	20°14.1'
21	100°17.4'	N 24°58.1'	10.6'	3.1'	54.3'	116°24.9'	111°55.1'	62°21.7'	33°01.9'	26°10.6'	15°15.1'	19°00.1'	20°40.9'
22	114°47.0'	N 25°01.2'	10.6'	3.0'	54.3'	115°55.1'	111°28.9'	61°51.9'	32°38.5'	25°40.9'	14°46.8'	19°28.8'	21°07.7'
23	129°16.6'	N 25°04.1'	10.5'	2.8'	54.3'	115°25.4'	111°02.8'	61°22.1'	32°15.2'	25°11.2'	14°18.5'	19°57.6'	21°34.6'
Mer. pass.		14 h 5 m SD 14.7'		phase 4%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.2'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°52.8'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.6'				

Saturday 15 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	232°56.5'	180°54.7'	N 18°52.1'	167°31.2'	N 21°44.4'	260°27.1'	S 12°10.8'	276°49.9'	S 17°22.0'	128°34.1'	N 24°12.0'			
1	247°58.9'	195°54.7'	N 18°52.7'	182°30.4'	N 21°45.0'	275°29.3'	S 12°10.7'	291°52.4'	S 17°22.0'	143°34.9'	N 24°11.8'			
2	263°01.4'	210°54.7'	N 18°53.3'	197°29.7'	N 21°45.6'	290°31.5'	S 12°10.6'	306°54.8'	S 17°22.0'	158°35.7'	N 24°11.7'			
3	278°03.9'	225°54.6'	N 18°53.9'	212°28.9'	N 21°46.2'	305°33.7'	S 12°10.5'	321°57.2'	S 17°22.0'	173°36.5'	N 24°11.5'			
4	293°06.3'	240°54.6'	N 18°54.4'	227°28.1'	N 21°46.8'	320°35.9'	S 12°10.4'	336°59.6'	S 17°22.0'	188°37.3'	N 24°11.3'			
5	308°08.8'	255°54.6'	N 18°55.0'	242°27.3'	N 21°47.4'	335°38.1'	S 12°10.4'	352°02.1'	S 17°22.0'	203°38.1'	N 24°11.2'			
6	323°11.2'	270°54.6'	N 18°55.6'	257°26.6'	N 21°48.0'	350°40.3'	S 12°10.3'	7°04.5'	S 17°22.0'	218°38.9'	N 24°11.0'			
7	338°13.7'	285°54.6'	N 18°56.2'	272°25.8'	N 21°48.6'	5°42.6'	S 12°10.2'	22°06.9'	S 17°22.0'	233°39.7'	N 24°10.9'			
8	353°16.2'	300°54.6'	N 18°56.8'	287°25.0'	N 21°49.2'	20°44.8'	S 12°10.1'	37°09.4'	S 17°22.0'	248°40.5'	N 24°10.7'			
9	8°18.6'	315°54.6'	N 18°57.4'	302°24.2'	N 21°49.8'	35°47.0'	S 12°10.0'	52°11.8'	S 17°22.0'	263°41.3'	N 24°10.5'			
10	23°21.1'	330°54.6'	N 18°58.0'	317°23.4'	N 21°50.4'	50°49.2'	S 12°09.9'	67°14.2'	S 17°22.0'	278°42.1'	N 24°10.4'			
11	38°23.6'	345°54.6'	N 18°58.5'	332°22.6'	N 21°51.0'	65°51.4'	S 12°09.8'	82°16.6'	S 17°22.0'	293°42.9'	N 24°10.2'			
12	53°26.0'	0°54.6'	N 18°59.1'	347°21.9'	N 21°51.6'	80°53.6'	S 12°09.8'	97°19.1'	S 17°22.0'	308°43.7'	N 24°10.1'			
13	68°28.5'	15°54.6'	N 18°59.7'	2°21.1'	N 21°52.2'	95°55.8'	S 12°09.7'	112°21.5'	S 17°22.0'	323°44.5'	N 24°09.9'			
14	83°31.0'	30°54.5'	N 19°00.3'	17°20.3'	N 21°52.8'	110°58.0'	S 12°09.6'	127°23.9'	S 17°22.0'	338°45.3'	N 24°09.7'			
15	98°33.4'	45°54.5'	N 19°00.9'	32°19.5'	N 21°53.4'	126°00.2'	S 12°09.5'	142°26.4'	S 17°22.0'	353°46.1'	N 24°09.6'			
16	113°35.9'	60°54.5'	N 19°01.5'	47°18.7'	N 21°54.0'	141°02.4'	S 12°09.4'	157°28.8'	S 17°22.0'	8°46.9'	N 24°09.4'			
17	128°38.4'	75°54.5'	N 19°02.0'	62°17.9'	N 21°54.6'	156°04.6'	S 12°09.3'	172°31.2'	S 17°22.0'	23°47.7'	N 24°09.3'			
18	143°40.8'	90°54.5'	N 19°02.6'	77°17.2'	N 21°55.1'	171°06.8'	S 12°09.2'	187°33.7'	S 17°22.0'	38°48.5'	N 24°09.1'			
19	158°43.3'	105°54.5'	N 19°03.2'	92°16.4'	N 21°55.7'	186°09.0'	S 12°09.2'	202°36.1'	S 17°22.0'	53°49.3'	N 24°08.9'			
20	173°45.7'	120°54.5'	N 19°03.8'	107°15.6'	N 21°56.3'	201°11.2'	S 12°09.1'	217°38.5'	S 17°22.0'	68°50.1'	N 24°08.8'			
21	188°48.2'	135°54.5'	N 19°04.4'	122°14.8'	N 21°56.9'	216°13.4'	S 12°09.0'	232°41.0'	S 17°22.0'	83°50.9'	N 24°08.6'			
22	203°50.7'	150°54.5'	N 19°04.9'	137°14.0'	N 21°57.5'	231°15.6'	S 12°08.9'	247°43.4'	S 17°22.0'	98°51.6'	N 24°08.4'			
23	218°53.1'	165°54.4'	N 19°05.5'	152°13.2'	N 21°58.1'	246°17.8'	S 12°08.8'	262°45.8'	S 17°22.0'	113°52.4'	N 24°08.3'			
		SD 15.8'	d 0.6'	v -0.8'	d 0.6'	v 2.2'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 23 s		12 h 51 m		6 h 37 m		5 h 32 m		15 h 25 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Mars	+Betelgeuse	+Aldebaran	+Venus	+Sun
0	143°46.1'	N 25°07.0'	10.5'	2.7'	54.3'	60°52.2'	31°52.1'	24°41.5'	13°50.3'		20°26.4'	22°01.5'	
1	158°15.6'	N 25°09.7'	10.5'	2.6'	54.3'	60°22.4'	31°29.2'	24°11.8'	13°22.0'		20°55.3'	22°28.3'	
2	172°45.1'	N 25°12.3'	10.4'	2.5'	54.3'	59°52.6'	31°06.4'	23°42.1'	12°53.7'		21°24.2'	22°55.2'	
3	187°14.5'	N 25°14.8'	10.4'	2.4'	54.4'	59°22.7'	30°43.8'	23°12.4'	12°25.5'		21°53.2'	23°22.1'	
4	201°43.9'	N 25°17.1'	10.4'	2.2'	54.4'	58°52.9'	30°21.4'	22°42.7'	11°57.2'		22°22.3'	23°49.0'	
5	216°13.3'	N 25°19.4'	10.3'	2.1'	54.4'	58°23.0'	29°59.2'	22°13.0'	11°29.0'		22°51.4'	24°16.0'	
6	230°42.6'	N 25°21.5'	10.3'	2.0'	54.4'	57°53.1'	29°37.2'	21°43.3'	11°00.7'		23°20.5'	24°42.9'	
7	245°11.9'	N 25°23.5'	10.3'	1.9'	54.4'	57°23.3'	29°15.4'	21°13.6'	10°32.5'		23°49.7'	25°09.9'	
8	259°41.2'	N 25°25.4'	10.2'	1.7'	54.4'	56°53.4'	28°53.8'	20°43.9'	10°04.3'		24°18.9'	25°36.8'	
9	274°10.4'	N 25°27.1'	10.2'	1.6'	54.4'	56°23.5'	28°32.4'	20°14.2'	9°36.1'		24°48.2'	26°03.8'	
10	288°39.7'	N 25°28.7'	10.2'	1.5'	54.4'	55°53.5'	28°11.3'	19°44.5'	9°07.9'		25°17.5'	26°30.8'	
11	303°08.8'	N 25°30.2'	10.2'	1.4'	54.5'	55°23.6'	27°50.3'	19°14.8'	8°39.7'		25°46.9'	26°57.8'	
12	317°38.0'	N 25°31.6'	10.1'	1.2'	54.5'	54°53.7'	27°29.7'	18°45.1'	8°11.6'		26°16.3'	27°24.8'	40°24.5'
13	332°07.1'	N 25°32.9'	10.1'	1.1'	54.5'	54°23.7'	27°09.3'	18°15.5'	7°43.5'		26°45.7'	27°51.9'	40°52.2'
14	346°36.2'	N 25°34.0'	10.1'	1.0'	54.5'	53°53.7'	26°49.2'	17°45.8'	7°15.5'		27°15.2'	28°18.9'	41°19.9'
15	1°05.3'	N 25°35.0'	10.0'	0.9'	54.5'	53°23.8'	26°29.4'	17°16.1'	6°47.5'		27°44.7'	28°46.0'	41°47.6'
16	15°34.3'	N 25°35.9'	10.0'	0.7'	54.5'	52°53.8'	26°09.8'	16°46.5'	6°19.6'		28°14.2'	29°13.0'	42°15.3'
17	30°03.4'	N 25°36.6'	10.0'	0.6'	54.6'	52°23.8'	25°50.6'	16°16.9'	5°51.8'	20°20.1'	28°43.8'	29°40.1'	42°43.0'
18	44°32.4'	N 25°37.2'	10.0'	0.5'	54.6'	51°53.8'	25°31.7'	15°47.3'	5°24.2'	20°35.2'	29°13.4'	30°07.2'	43°10.8'
19	59°01.3'	N 25°37.7'	10.0'	0.4'	54.6'	51°23.7'	25°13.1'	15°17.7'	4°56.7'	20°50.8'	29°43.1'	30°34.4'	43°38.6'
20	73°30.3'	N 25°38.1'	9.9'	0.2'	54.6'	50°53.7'	24°54.9'	14°48.2'	4°29.4'	21°07.0'	30°12.7'	31°01.5'	44°06.4'
21	87°59.2'	N 25°38.3'	9.9'	0.1'	54.6'	50°23.6'	24°37.0'	14°18.6'	4°02.5'	21°23.6'	30°42.4'	31°28.7'	44°34.1'
22	102°28.2'	N 25°38.4'	9.9'	-0.0'	54.6'	49°53.6'	24°19.5'	13°49.2'	3°36.0'	21°40.7'	31°12.2'	31°55.8'	45°02.0'
23	116°57.1'	N 25°38.4'	9.9'	-0.1'	54.6'	49°23.5'	24°02.4'	13°19.7'		21°58.3'	31°41.9'	32°23.0'	45°29.8'
Mer. pass.		14 h 56 m SD 14.8'	phase 9%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.6'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°52.6'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	233°55.6'	180°54.4'	N 19°06.1'	167°12.4'	N 21°58.7'	261°20.0'	S 12°08.7'	277°48.2'	S 17°22.0'	128°53.2'	N 24°08.1'			
1	248°58.1'	195°54.4'	N 19°06.7'	182°11.7'	N 21°59.3'	276°22.2'	S 12°08.7'	292°50.7'	S 17°22.0'	143°54.0'	N 24°07.9'			
2	264°00.5'	210°54.4'	N 19°07.2'	197°10.9'	N 21°59.8'	291°24.4'	S 12°08.6'	307°53.1'	S 17°21.9'	158°54.8'	N 24°07.8'			
3	279°03.0'	225°54.4'	N 19°07.8'	212°10.1'	N 22°00.4'	306°26.6'	S 12°08.5'	322°55.5'	S 17°21.9'	173°55.6'	N 24°07.6'			
4	294°05.5'	240°54.4'	N 19°08.4'	227°09.3'	N 22°01.0'	321°28.9'	S 12°08.4'	337°58.0'	S 17°21.9'	188°56.4'	N 24°07.4'			
5	309°07.9'	255°54.4'	N 19°09.0'	242°08.5'	N 22°01.6'	336°31.1'	S 12°08.3'	353°00.4'	S 17°21.9'	203°57.2'	N 24°07.3'			
6	324°10.4'	270°54.3'	N 19°09.5'	257°07.7'	N 22°02.2'	351°33.3'	S 12°08.2'	8°02.8'	S 17°21.9'	218°58.0'	N 24°07.1'			
7	339°12.9'	285°54.3'	N 19°10.1'	272°06.9'	N 22°02.7'	6°35.5'	S 12°08.1'	23°05.3'	S 17°21.9'	233°58.8'	N 24°06.9'			
8	354°15.3'	300°54.3'	N 19°10.7'	287°06.1'	N 22°03.3'	21°37.7'	S 12°08.1'	38°07.7'	S 17°21.9'	248°59.6'	N 24°06.8'			
9	9°17.8'	315°54.3'	N 19°11.3'	302°05.3'	N 22°03.9'	36°39.9'	S 12°08.0'	53°10.1'	S 17°21.9'	264°00.4'	N 24°06.6'			
10	24°20.2'	330°54.3'	N 19°11.8'	317°04.6'	N 22°04.5'	51°42.1'	S 12°07.9'	68°12.6'	S 17°21.9'	279°01.2'	N 24°06.4'			
11	39°22.7'	345°54.3'	N 19°12.4'	332°03.8'	N 22°05.0'	66°44.3'	S 12°07.8'	83°15.0'	S 17°21.9'	294°02.0'	N 24°06.3'			
12	54°25.2'	0°54.3'	N 19°13.0'	347°03.0'	N 22°05.6'	81°46.5'	S 12°07.7'	98°17.4'	S 17°21.9'	309°02.8'	N 24°06.1'			
13	69°27.6'	15°54.2'	N 19°13.5'	2°02.2'	N 22°06.2'	96°48.7'	S 12°07.7'	113°19.9'	S 17°21.9'	324°03.6'	N 24°05.9'			
14	84°30.1'	30°54.2'	N 19°14.1'	17°01.4'	N 22°06.7'	111°50.9'	S 12°07.6'	128°22.3'	S 17°21.9'	339°04.5'	N 24°05.8'			
15	99°32.6'	45°54.2'	N 19°14.7'	32°00.6'	N 22°07.3'	126°53.2'	S 12°07.5'	143°24.7'	S 17°21.9'	354°05.3'	N 24°05.6'			
16	114°35.0'	60°54.2'	N 19°15.2'	46°59.8'	N 22°07.9'	141°55.4'	S 12°07.4'	158°27.2'	S 17°21.9'	9°06.1'	N 24°05.4'			
17	129°37.5'	75°54.2'	N 19°15.8'	61°59.0'	N 22°08.4'	156°57.6'	S 12°07.3'	173°29.6'	S 17°21.9'	24°06.9'	N 24°05.3'			
18	144°40.0'	90°54.2'	N 19°16.4'	76°58.2'	N 22°09.0'	171°59.8'	S 12°07.2'	188°32.1'	S 17°21.9'	39°07.7'	N 24°05.1'			
19	159°42.4'	105°54.1'	N 19°16.9'	91°57.4'	N 22°09.6'	187°02.0'	S 12°07.2'	203°34.5'	S 17°21.9'	54°08.5'	N 24°04.9'			
20	174°44.9'	120°54.1'	N 19°17.5'	106°56.6'	N 22°10.1'	202°04.2'	S 12°07.1'	218°36.9'	S 17°21.9'	69°09.3'	N 24°04.8'			
21	189°47.4'	135°54.1'	N 19°18.1'	121°55.8'	N 22°10.7'	217°06.4'	S 12°07.0'	233°39.4'	S 17°21.9'	84°10.1'	N 24°04.6'			
22	204°49.8'	150°54.1'	N 19°18.6'	136°55.0'	N 22°11.3'	232°08.6'	S 12°06.9'	248°41.8'	S 17°21.9'	99°10.9'	N 24°04.4'			
23	219°52.3'	165°54.1'	N 19°19.2'	151°54.2'	N 22°11.8'	247°10.8'	S 12°06.8'	263°44.2'	S 17°21.9'	114°11.7'	N 24°04.2'			
		SD 15.8'	d 0.6'	v -0.8'	d 0.6'	v 2.2'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 24 s		12 h 52 m		6 h 34 m		5 h 28 m		15 h 24 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Mars	+Betelgeuse	+Capella	+Aldebaran	+Sun
0	131°26.0'	N 25°38.3'	9.9'	-0.3'	54.7'	48°53.4'	23°45.7'	12°50.3'		22°16.3'	27°23.5'	32°11.7'	45°57.6'
1	145°54.8'	N 25°38.0'	9.9'	-0.4'	54.7'	48°23.3'	23°29.4'	12°21.0'		22°34.7'	27°41.6'	32°41.6'	46°25.5'
2	160°23.7'	N 25°37.6'	9.8'	-0.5'	54.7'	47°53.2'	23°13.5'	11°51.7'		22°53.5'	28°00.1'	33°11.4'	46°53.4'
3	174°52.5'	N 25°37.1'	9.8'	-0.7'	54.7'	47°23.1'		11°22.4'		23°12.8'	28°18.9'	33°41.3'	47°21.3'
4	189°21.4'	N 25°36.4'	9.8'	-0.8'	54.7'	46°52.9'		10°53.3'		23°32.4'	28°38.0'	34°11.2'	47°49.2'
5	203°50.2'	N 25°35.6'	9.8'	-0.9'	54.8'	46°22.7'		10°24.3'		23°52.4'	28°57.4'	34°41.1'	48°17.1'
6	218°19.0'	N 25°34.7'	9.8'	-1.0'	54.8'	45°52.6'		9°55.4'		24°12.7'	29°17.2'	35°11.1'	48°45.1'
7	232°47.8'	N 25°33.7'	9.8'	-1.2'	54.8'	45°22.4'		9°26.6'		24°33.4'	29°37.2'	35°41.1'	49°13.1'
8	247°16.5'	N 25°32.5'	9.8'	-1.3'	54.8'	44°52.2'		8°57.9'		24°54.4'	29°57.5'	36°11.1'	49°41.1'
9	261°45.3'	N 25°31.2'	9.8'	-1.4'	54.8'	44°22.0'		8°29.5'		25°15.7'	30°18.0'	36°41.1'	50°09.1'
10	276°14.1'	N 25°29.8'	9.8'	-1.6'	54.8'	43°51.7'		8°01.3'		25°37.3'	30°38.8'	37°11.2'	50°37.1'
11	290°42.9'	N 25°28.2'	9.8'	-1.7'	54.9'	43°21.5'		7°33.3'		25°59.2'	30°59.9'	37°41.3'	51°05.1'
12	305°11.6'	N 25°26.5'	9.8'	-1.8'	54.9'	42°51.2'		7°05.7'	3°44.8'	26°21.4'	31°21.2'	38°11.4'	51°33.2'
13	319°40.4'	N 25°24.7'	9.7'	-1.9'	54.9'	42°20.9'		6°38.5'	4°11.7'	26°43.8'	31°42.7'	38°41.6'	52°01.3'
14	334°09.1'	N 25°22.8'	9.7'	-2.1'	54.9'	41°50.7'		6°11.7'	4°39.0'	27°06.5'	32°04.5'	39°11.8'	52°29.4'
15	348°37.8'	N 25°20.7'	9.7'	-2.2'	54.9'	41°20.4'		5°45.6'	5°06.7'	27°29.4'	32°26.5'	39°42.0'	52°57.5'
16	3°06.6'	N 25°18.5'	9.7'	-2.3'	55.0'	40°50.0'		5°14.6'	5°34.6'	27°52.6'	32°48.7'	40°12.2'	53°25.7'
17	17°35.3'	N 25°16.1'	9.7'	-2.5'	55.0'	40°19.7'		4°42.7'	6°02.7'	28°16.0'	33°11.2'	40°42.5'	53°53.8'
18	32°04.1'	N 25°13.7'	9.7'	-2.6'	55.0'	39°49.3'		4°11.0'	6°31.0'	28°39.7'	33°33.8'	41°12.8'	54°22.0'
19	46°32.8'	N 25°11.1'	9.7'	-2.7'	55.0'	39°19.0'		3°39.4'	6°59.4'	29°03.5'	33°56.6'	41°43.1'	54°50.2'
20	61°01.5'	N 25°08.4'	9.7'	-2.9'	55.0'	38°48.6'		3°07.9'	7°27.9'	29°27.6'	34°19.7'	42°13.4'	55°18.4'
21	75°30.3'	N 25°05.5'	9.7'	-3.0'	55.1'	38°18.2'		2°36.5'	7°56.5'	29°51.9'	34°42.9'	42°43.8'	55°46.7'
22	89°59.0'	N 25°02.5'	9.8'	-3.1'	55.1'	37°47.8'		2°05.2'	8°25.2'	30°16.3'	35°06.3'	43°14.2'	56°15.0'
23	104°27.8'	N 24°59.4'	9.8'	-3.2'	55.1'	37°17.4'		1°33.9'	8°53.9'	30°41.0'	35°29.9'	43°44.6'	56°43.3'
Mer. pass.		15 h 47 m SD 14.9'		phase 15%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.7'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°52.4'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.6'				

Monday 17 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	234°54.7'	180°54.0'	N 19°19.8'	166°53.4'	N 22°12.4'	262°13.1'	S 12°06.7'	278°46.7'	S 17°21.9'	129°12.5'	N 24°04.1'			
1	249°57.2'	195°54.0'	N 19°20.3'	181°52.6'	N 22°12.9'	277°15.3'	S 12°06.7'	293°49.1'	S 17°21.9'	144°13.3'	N 24°03.9'			
2	264°59.7'	210°54.0'	N 19°20.9'	196°51.8'	N 22°13.5'	292°17.5'	S 12°06.6'	308°51.5'	S 17°21.9'	159°14.1'	N 24°03.7'			
3	280°02.1'	225°54.0'	N 19°21.5'	211°51.0'	N 22°14.0'	307°19.7'	S 12°06.5'	323°54.0'	S 17°21.9'	174°14.9'	N 24°03.6'			
4	295°04.6'	240°54.0'	N 19°22.0'	226°50.2'	N 22°14.6'	322°21.9'	S 12°06.4'	338°56.4'	S 17°21.9'	189°15.7'	N 24°03.4'			
5	310°07.1'	255°53.9'	N 19°22.6'	241°49.4'	N 22°15.2'	337°24.1'	S 12°06.3'	353°58.8'	S 17°21.9'	204°16.5'	N 24°03.2'			
6	325°09.5'	270°53.9'	N 19°23.1'	256°48.6'	N 22°15.7'	352°26.3'	S 12°06.3'	9°01.3'	S 17°21.9'	219°17.3'	N 24°03.0'			
7	340°12.0'	285°53.9'	N 19°23.7'	271°47.8'	N 22°16.3'	7°28.6'	S 12°06.2'	24°03.7'	S 17°21.9'	234°18.1'	N 24°02.9'			
8	355°14.5'	300°53.9'	N 19°24.3'	286°47.0'	N 22°16.8'	22°30.8'	S 12°06.1'	39°06.2'	S 17°21.9'	249°18.9'	N 24°02.7'			
9	10°16.9'	315°53.9'	N 19°24.8'	301°46.2'	N 22°17.4'	37°33.0'	S 12°06.0'	54°08.6'	S 17°21.9'	264°19.7'	N 24°02.5'			
10	25°19.4'	330°53.8'	N 19°25.4'	316°45.4'	N 22°17.9'	52°35.2'	S 12°05.9'	69°11.0'	S 17°21.9'	279°20.5'	N 24°02.3'			
11	40°21.9'	345°53.8'	N 19°25.9'	331°44.6'	N 22°18.5'	67°37.4'	S 12°05.8'	84°13.5'	S 17°21.9'	294°21.3'	N 24°02.2'			
12	55°24.3'	0°53.8'	N 19°26.5'	346°43.8'	N 22°19.0'	82°39.6'	S 12°05.8'	99°15.9'	S 17°21.9'	309°22.1'	N 24°02.0'			
13	70°26.8'	15°53.8'	N 19°27.0'	1°43.0'	N 22°19.5'	97°41.9'	S 12°05.7'	114°18.4'	S 17°21.9'	324°22.9'	N 24°01.8'			
14	85°29.2'	30°53.8'	N 19°27.6'	16°42.2'	N 22°20.1'	112°44.1'	S 12°05.6'	129°20.8'	S 17°21.9'	339°23.7'	N 24°01.6'			
15	100°31.7'	45°53.7'	N 19°28.2'	31°41.4'	N 22°20.6'	127°46.3'	S 12°05.5'	144°23.2'	S 17°21.9'	354°24.5'	N 24°01.5'			
16	115°34.2'	60°53.7'	N 19°28.7'	46°40.6'	N 22°21.2'	142°48.5'	S 12°05.4'	159°25.7'	S 17°21.9'	9°25.3'	N 24°01.3'			
17	130°36.6'	75°53.7'	N 19°29.3'	61°39.8'	N 22°21.7'	157°50.7'	S 12°05.4'	174°28.1'	S 17°21.9'	24°26.1'	N 24°01.1'			
18	145°39.1'	90°53.7'	N 19°29.8'	76°39.0'	N 22°22.2'	172°52.9'	S 12°05.3'	189°30.5'	S 17°21.9'	39°26.9'	N 24°00.9'			
19	160°41.6'	105°53.6'	N 19°30.4'	91°38.2'	N 22°22.8'	187°55.2'	S 12°05.2'	204°33.0'	S 17°21.9'	54°27.7'	N 24°00.8'			
20	175°44.0'	120°53.6'	N 19°30.9'	106°37.4'	N 22°23.3'	202°57.4'	S 12°05.1'	219°35.4'	S 17°21.9'	69°28.5'	N 24°00.6'			
21	190°46.5'	135°53.6'	N 19°31.5'	121°36.6'	N 22°23.9'	217°59.6'	S 12°05.0'	234°37.9'	S 17°21.9'	84°29.3'	N 24°00.4'			
22	205°49.0'	150°53.6'	N 19°32.0'	136°35.8'	N 22°24.4'	233°01.8'	S 12°05.0'	249°40.3'	S 17°21.9'	99°30.1'	N 24°00.2'			
23	220°51.4'	165°53.6'	N 19°32.6'	151°35.0'	N 22°24.9'	248°04.0'	S 12°04.9'	264°42.7'	S 17°21.9'	114°30.9'	N 24°00.1'			
		SD 15.8'	d 0.6'	v -0.8'	d 0.5'	v 2.2'	d 0.1'	v 2.4'	d 0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 26 s		12 h 53 m		6 h 30 m		5 h 24 m		15 h 22 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Mars	+Betelgeuse	+Capella	+Sun
0	118°56.5'	N 24°56.2'	9.8'	-3.4'	55.1'	90°49.3'	89°06.1'	36°46.9'		9°22.7'	31°05.8'	35°53.6'	57°11.6'
1	133°25.3'	N 24°52.8'	9.8'	-3.5'	55.2'	90°18.7'	88°38.7'	36°16.5'		9°51.6'	31°30.8'	36°17.5'	57°39.9'
2	147°54.1'	N 24°49.3'	9.8'	-3.6'	55.2'	89°48.1'	88°11.2'	35°46.0'		10°20.5'	31°55.9'	36°41.6'	58°08.3'
3	162°22.9'	N 24°45.7'	9.8'	-3.8'	55.2'	89°17.5'	87°43.8'	35°15.5'		10°49.5'	32°21.3'	37°05.9'	58°36.7'
4	176°51.6'	N 24°41.9'	9.8'	-3.9'	55.2'	88°46.8'	87°16.3'	34°45.0'		11°18.6'	32°46.8'	37°30.3'	59°05.1'
5	191°20.4'	N 24°38.1'	9.8'	-4.0'	55.2'	88°16.2'	86°48.7'	34°14.5'		11°47.6'	33°12.4'	37°54.8'	59°33.5'
6	205°49.2'	N 24°34.0'	9.8'	-4.1'	55.3'	87°45.5'	86°21.2'	33°44.0'		12°16.8'	33°38.2'	38°19.5'	60°02.0'
7	220°18.0'	N 24°29.9'	9.8'	-4.3'	55.3'	87°14.7'	85°53.7'	33°13.4'		12°45.9'	34°04.1'	38°44.4'	60°30.4'
8	234°46.9'	N 24°25.6'	9.8'	-4.4'	55.3'	86°44.0'	85°26.1'	32°42.9'		13°15.1'	34°30.2'	39°09.4'	60°58.9'
9	249°15.7'	N 24°21.3'	9.8'	-4.5'	55.3'	86°13.2'	84°58.5'	32°12.3'		13°44.3'	34°56.4'	39°34.5'	61°27.5'
10	263°44.5'	N 24°16.7'	9.9'	-4.6'	55.4'	85°42.4'	84°30.9'	31°41.7'		14°13.6'	35°22.8'	39°59.8'	61°56.0'
11	278°13.4'	N 24°12.1'	9.9'	-4.8'	55.4'	85°11.6'	84°03.3'	31°11.1'	6°12.6'	14°42.9'	35°49.2'	40°25.1'	62°24.6'
12	292°42.3'	N 24°07.3'	9.9'	-4.9'	55.4'	84°40.7'	83°35.7'	30°40.5'	6°39.8'	15°12.3'	36°15.8'	40°50.7'	62°53.2'
13	307°11.2'	N 24°02.4'	9.9'	-5.0'	55.4'	84°09.8'	83°08.0'	30°09.9'	7°07.6'	15°41.7'	36°42.5'	41°16.3'	63°21.8'
14	321°40.1'	N 23°57.4'	9.9'	-5.1'	55.5'	83°38.9'	82°40.4'	29°39.2'	7°35.7'	16°11.1'	37°09.4'	41°42.1'	63°50.5'
15	336°09.0'	N 23°52.2'	9.9'	-5.3'	55.5'	83°08.0'	82°12.7'	29°08.6'	8°04.3'	16°40.5'	37°36.3'	42°07.9'	64°19.2'
16	350°37.9'	N 23°47.0'	10.0'	-5.4'	55.5'	82°37.1'	81°45.0'	28°37.9'	8°33.2'	17°10.0'	38°03.4'	42°33.9'	64°47.9'
17	5°06.9'	N 23°41.6'	10.0'	-5.5'	55.5'	82°06.1'	81°17.3'	28°07.2'	9°02.3'	17°39.5'	38°30.6'	43°00.1'	65°16.6'
18	19°35.9'	N 23°36.1'	10.0'	-5.6'	55.6'	81°35.1'	80°49.6'	27°36.5'	9°31.7'	18°09.0'	38°57.9'	43°26.3'	65°45.4'
19	34°04.9'	N 23°30.4'	10.0'	-5.8'	55.6'	81°04.1'	80°21.8'	27°05.9'	10°01.3'	18°38.6'	39°25.3'	43°52.6'	66°14.2'
20	48°33.9'	N 23°24.6'	10.0'	-5.9'	55.6'	80°33.0'	79°54.1'	26°35.2'	10°31.1'	19°08.2'	39°52.7'	44°19.1'	66°43.0'
21	63°02.9'	N 23°18.7'	10.1'	-6.0'	55.6'	80°01.9'	79°26.3'	26°04.4'	11°01.0'	19°37.9'	40°20.3'	44°45.6'	67°11.8'
22	77°32.0'	N 23°12.7'	10.1'	-6.1'	55.7'	79°30.8'	78°58.5'	25°33.7'	11°31.1'	20°07.5'	40°48.0'	45°12.3'	67°40.7'
23	92°01.0'	N 23°06.6'	10.1'	-6.3'	55.7'	78°59.7'	78°30.7'	25°03.0'	12°01.2'	20°37.2'	41°15.8'	45°39.0'	68°09.6'
Mer. pass.		16 h 39 m SD 15.0'		phase 23%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.0'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°52.2'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.1'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	235°53.9'	180°53.5'	N 19°33.1'	166°34.2'	N 22°25.5'	263°06.2'	S 12°04.8'	279°45.2'	S 17°21.9'	129°31.7'	N 23°59.9'			
1	250°56.3'	195°53.5'	N 19°33.7'	181°33.4'	N 22°26.0'	278°08.5'	S 12°04.7'	294°47.6'	S 17°21.9'	144°32.5'	N 23°59.7'			
2	265°58.8'	210°53.5'	N 19°34.2'	196°32.6'	N 22°26.5'	293°10.7'	S 12°04.6'	309°50.1'	S 17°21.9'	159°33.3'	N 23°59.5'			
3	281°01.3'	225°53.5'	N 19°34.8'	211°31.8'	N 22°27.1'	308°12.9'	S 12°04.6'	324°52.5'	S 17°21.9'	174°34.1'	N 23°59.3'			
4	296°03.7'	240°53.4'	N 19°35.3'	226°31.0'	N 22°27.6'	323°15.1'	S 12°04.5'	339°54.9'	S 17°21.9'	189°34.9'	N 23°59.2'			
5	311°06.2'	255°53.4'	N 19°35.9'	241°30.2'	N 22°28.1'	338°17.3'	S 12°04.4'	354°57.4'	S 17°21.9'	204°35.7'	N 23°59.0'			
6	326°08.7'	270°53.4'	N 19°36.4'	256°29.4'	N 22°28.6'	353°19.6'	S 12°04.3'	9°59.8'	S 17°21.9'	219°36.5'	N 23°58.8'			
7	341°11.1'	285°53.4'	N 19°37.0'	271°28.5'	N 22°29.2'	8°21.8'	S 12°04.2'	25°02.3'	S 17°21.9'	234°37.3'	N 23°58.6'			
8	356°13.6'	300°53.3'	N 19°37.5'	286°27.7'	N 22°29.7'	23°24.0'	S 12°04.2'	40°04.7'	S 17°21.9'	249°38.1'	N 23°58.4'			
9	11°16.1'	315°53.3'	N 19°38.0'	301°26.9'	N 22°30.2'	38°26.2'	S 12°04.1'	55°07.2'	S 17°21.9'	264°38.9'	N 23°58.3'			
10	26°18.5'	330°53.3'	N 19°38.6'	316°26.1'	N 22°30.7'	53°28.5'	S 12°04.0'	70°09.6'	S 17°21.9'	279°39.7'	N 23°58.1'			
11	41°21.0'	345°53.2'	N 19°39.1'	331°25.3'	N 22°31.2'	68°30.7'	S 12°03.9'	85°12.0'	S 17°21.9'	294°40.5'	N 23°57.9'			
12	56°23.5'	0°53.2'	N 19°39.7'	346°24.5'	N 22°31.8'	83°32.9'	S 12°03.9'	100°14.5'	S 17°21.9'	309°41.3'	N 23°57.7'			
13	71°25.9'	15°53.2'	N 19°40.2'	1°23.7'	N 22°32.3'	98°35.1'	S 12°03.8'	115°16.9'	S 17°21.9'	324°42.1'	N 23°57.5'			
14	86°28.4'	30°53.2'	N 19°40.8'	16°22.9'	N 22°32.8'	113°37.3'	S 12°03.7'	130°19.4'	S 17°21.9'	339°42.9'	N 23°57.3'			
15	101°30.8'	45°53.1'	N 19°41.3'	31°22.1'	N 22°33.3'	128°39.6'	S 12°03.6'	145°21.8'	S 17°21.9'	354°43.7'	N 23°57.2'			
16	116°33.3'	60°53.1'	N 19°41.8'	46°21.2'	N 22°33.8'	143°41.8'	S 12°03.5'	160°24.3'	S 17°21.9'	9°44.5'	N 23°57.0'			
17	131°35.8'	75°53.1'	N 19°42.4'	61°20.4'	N 22°34.3'	158°44.0'	S 12°03.5'	175°26.7'	S 17°21.9'	24°45.3'	N 23°56.8'			
18	146°38.2'	90°53.1'	N 19°42.9'	76°19.6'	N 22°34.9'	173°46.2'	S 12°03.4'	190°29.1'	S 17°21.9'	39°46.1'	N 23°56.6'			
19	161°40.7'	105°53.0'	N 19°43.5'	91°18.8'	N 22°35.4'	188°48.5'	S 12°03.3'	205°31.6'	S 17°21.9'	54°46.9'	N 23°56.4'			
20	176°43.2'	120°53.0'	N 19°44.0'	106°18.0'	N 22°35.9'	203°50.7'	S 12°03.2'	220°34.0'	S 17°21.9'	69°47.8'	N 23°56.2'			
21	191°45.6'	135°53.0'	N 19°44.5'	121°17.2'	N 22°36.4'	218°52.9'	S 12°03.2'	235°36.5'	S 17°21.9'	84°48.6'	N 23°56.1'			
22	206°48.1'	150°52.9'	N 19°45.1'	136°16.4'	N 22°36.9'	233°55.1'	S 12°03.1'	250°38.9'	S 17°21.9'	99°49.4'	N 23°55.9'			
23	221°50.6'	165°52.9'	N 19°45.6'	151°15.6'	N 22°37.4'	248°57.4'	S 12°03.0'	265°41.4'	S 17°21.9'	114°50.2'	N 23°55.7'			
		SD 15.8' d 0.5'		v -0.8' d 0.5'		v 2.2' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.2'				
Mer. pass.		11 h 56 m 28 s		12 h 54 m		6 h 27 m		5 h 20 m		15 h 21 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Mars	+Procyon	+Sun
0	106°30.1'	N 23°00.3'	10.1'	-6.4'	55.7'	97°15.7'	78°28.5'	78°02.9'	24°32.3'	12°31.6'	21°07.0'	22°33.1'	68°38.5'
1	120°59.2'	N 22°53.9'	10.1'	-6.5'	55.8'	96°58.1'	77°57.3'	77°35.1'	24°01.5'	13°02.0'	21°36.7'	22°48.2'	69°07.5'
2	135°28.4'	N 22°47.4'	10.2'	-6.6'	55.8'	96°40.4'	77°26.1'	77°07.3'	23°30.8'	13°32.5'	22°06.5'	23°03.8'	69°36.5'
3	149°57.5'	N 22°40.8'	10.2'	-6.8'	55.8'	96°22.7'	76°54.8'	76°39.4'	23°00.1'	14°03.1'	22°36.4'	23°20.0'	70°05.5'
4	164°26.7'	N 22°34.0'	10.2'	-6.9'	55.8'	96°04.9'	76°23.5'	76°11.5'	22°29.3'	14°33.8'	23°06.2'	23°36.6'	70°34.5'
5	178°55.9'	N 22°27.1'	10.2'	-7.0'	55.9'	95°47.1'	75°52.2'	75°43.7'	21°58.6'	15°04.6'	23°36.1'	23°53.8'	71°03.6'
6	193°25.1'	N 22°20.2'	10.3'	-7.1'	55.9'	95°29.3'	75°20.9'	75°15.8'	21°27.9'	15°35.5'	24°06.1'	24°11.4'	71°32.7'
7	207°54.4'	N 22°13.0'	10.3'	-7.2'	55.9'	95°11.4'	74°49.5'	74°47.9'	20°57.2'	16°06.4'	24°36.0'	24°29.5'	72°01.9'
8	222°23.7'	N 22°05.8'	10.3'	-7.4'	55.9'	94°53.5'	74°18.1'	74°20.0'	20°26.5'	16°37.4'	25°06.0'	24°48.0'	72°31.0'
9	236°53.0'	N 21°58.5'	10.3'	-7.5'	56.0'	94°35.6'	73°46.7'	73°52.1'	19°55.8'	17°08.4'	25°36.1'	25°06.9'	73°00.2'
10	251°22.3'	N 21°51.0'	10.3'	-7.6'	56.0'	94°17.6'	73°15.2'	73°24.2'	19°25.1'	17°39.6'	26°06.1'	25°26.3'	73°29.5'
11	265°51.6'	N 21°43.4'	10.4'	-7.7'	56.0'	93°59.6'	72°43.8'	72°56.3'	18°54.4'	18°10.7'	26°36.2'	25°46.0'	74°58.7'
12	280°21.0'	N 21°35.7'	10.4'	-7.8'	56.1'	93°41.6'	72°12.2'	72°28.3'	18°23.8'	18°42.0'	27°06.3'	26°06.2'	74°28.0'
13	294°50.4'	N 21°27.9'	10.4'	-7.9'	56.1'	93°23.5'	71°40.7'	72°00.4'	17°53.2'	19°13.3'	27°36.5'	26°26.7'	74°57.4'
14	309°19.8'	N 21°19.9'	10.5'	-8.1'	56.1'	93°05.4'	71°09.1'	71°32.4'	17°22.6'	19°44.6'	28°06.7'	26°47.5'	75°26.7'
15	323°49.3'	N 21°11.9'	10.5'	-8.2'	56.2'	92°47.3'	70°37.5'	71°04.5'	16°52.1'	20°16.0'	28°36.9'	27°08.7'	75°56.1'
16	338°18.8'	N 21°03.7'	10.5'	-8.3'	56.2'	92°29.2'	70°05.9'	70°36.5'	16°21.6'	20°47.5'	29°07.2'	27°30.3'	76°25.5'
17	352°48.3'	N 20°55.4'	10.5'	-8.4'	56.2'	92°11.0'	69°34.2'	70°08.5'	15°51.2'	21°19.0'	29°37.5'	27°52.2'	76°55.0'
18	7°17.8'	N 20°47.0'	10.6'	-8.5'	56.2'	91°52.8'	69°02.5'	69°40.6'	15°20.8'	21°50.6'	30°07.8'	28°14.4'	77°24.5'
19	21°47.4'	N 20°38.5'	10.6'	-8.6'	56.3'	91°34.6'	68°30.7'	69°12.6'	14°50.6'	22°22.2'	30°38.2'	28°36.9'	77°54.0'
20	36°16.9'	N 20°29.9'	10.6'	-8.7'	56.3'	91°16.3'	67°59.0'	68°44.6'	14°20.3'	22°53.8'	31°08.6'	28°59.7'	78°23.6'
21	50°46.6'	N 20°21.2'	10.6'	-8.8'	56.3'	90°58.0'	67°27.2'	68°16.6'	13°50.2'	23°25.5'	31°39.0'	29°22.7'	78°53.2'
22	65°16.2'	N 20°12.3'	10.7'	-9.0'	56.4'	90°39.7'	66°55.3'	67°48.7'	13°20.2'	23°57.3'	32°09.5'	29°46.1'	79°22.8'
23	79°45.9'	N 20°03.4'	10.7'	-9.1'	56.4'	90°21.4'	66°23.4'	67°20.7'	12°50.4'	24°29.1'	32°40.0'	30°09.7'	79°52.5'
Mer. pass.		17 h 30 m SD 15.2'		phase 32%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°52.1'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.3'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	236°53.0'	180°52.9'	N 19°46.1'	166°14.7'	N 22°37.9'	263°59.6'	S 12°02.9'	280°43.8'	S 17°21.9'	129°51.0'	N 23°55.5'			
1	251°55.5'	195°52.8'	N 19°46.7'	181°13.9'	N 22°38.4'	279°01.8'	S 12°02.8'	295°46.2'	S 17°21.9'	144°51.8'	N 23°55.3'			
2	266°58.0'	210°52.8'	N 19°47.2'	196°13.1'	N 22°38.9'	294°04.0'	S 12°02.8'	310°48.7'	S 17°21.9'	159°52.6'	N 23°55.1'			
3	282°00.4'	225°52.8'	N 19°47.7'	211°12.3'	N 22°39.4'	309°06.3'	S 12°02.7'	325°51.1'	S 17°21.9'	174°53.4'	N 23°55.0'			
4	297°02.9'	240°52.8'	N 19°48.3'	226°11.5'	N 22°39.9'	324°08.5'	S 12°02.6'	340°53.6'	S 17°21.9'	189°54.2'	N 23°54.8'			
5	312°05.3'	255°52.7'	N 19°48.8'	241°10.7'	N 22°40.4'	339°10.7'	S 12°02.5'	355°56.0'	S 17°21.9'	204°55.0'	N 23°54.6'			
6	327°07.8'	270°52.7'	N 19°49.3'	256°09.8'	N 22°40.9'	354°12.9'	S 12°02.5'	10°58.5'	S 17°21.9'	219°55.8'	N 23°54.4'			
7	342°10.3'	285°52.7'	N 19°49.9'	271°09.0'	N 22°41.4'	9°15.2'	S 12°02.4'	26°00.9'	S 17°21.9'	234°56.6'	N 23°54.2'			
8	357°12.7'	300°52.6'	N 19°50.4'	286°08.2'	N 22°41.9'	24°17.4'	S 12°02.3'	41°03.4'	S 17°21.9'	249°57.4'	N 23°54.0'			
9	12°15.2'	315°52.6'	N 19°50.9'	301°07.4'	N 22°42.4'	39°19.6'	S 12°02.2'	56°05.8'	S 17°21.9'	264°58.2'	N 23°53.8'			
10	27°17.7'	330°52.6'	N 19°51.5'	316°06.6'	N 22°42.9'	54°21.9'	S 12°02.2'	71°08.3'	S 17°21.9'	279°59.0'	N 23°53.6'			
11	42°20.1'	345°52.5'	N 19°52.0'	331°05.8'	N 22°43.4'	69°24.1'	S 12°02.1'	86°10.7'	S 17°21.9'	294°59.8'	N 23°53.5'			
12	57°22.6'	0°52.5'	N 19°52.5'	346°04.9'	N 22°43.9'	84°26.3'	S 12°02.0'	101°13.1'	S 17°21.9'	310°00.6'	N 23°53.3'			
13	72°25.1'	15°52.5'	N 19°53.1'	1°04.1'	N 22°44.4'	99°28.5'	S 12°01.9'	116°15.6'	S 17°21.9'	325°01.4'	N 23°53.1'			
14	87°27.5'	30°52.4'	N 19°53.6'	16°03.3'	N 22°44.9'	114°30.8'	S 12°01.8'	131°18.0'	S 17°21.9'	340°02.2'	N 23°52.9'			
15	102°30.0'	45°52.4'	N 19°54.1'	31°02.5'	N 22°45.4'	129°33.0'	S 12°01.8'	146°20.5'	S 17°21.9'	355°03.0'	N 23°52.7'			
16	117°32.4'	60°52.4'	N 19°54.6'	46°01.7'	N 22°45.9'	144°35.2'	S 12°01.7'	161°22.9'	S 17°21.9'	10°03.8'	N 23°52.5'			
17	132°34.9'	75°52.3'	N 19°55.2'	61°00.8'	N 22°46.3'	159°37.5'	S 12°01.6'	176°25.4'	S 17°21.9'	25°04.6'	N 23°52.3'			
18	147°37.4'	90°52.3'	N 19°55.7'	76°00.0'	N 22°46.8'	174°39.7'	S 12°01.5'	191°27.8'	S 17°21.9'	40°05.4'	N 23°52.1'			
19	162°39.8'	105°52.3'	N 19°56.2'	90°59.2'	N 22°47.3'	189°41.9'	S 12°01.5'	206°30.3'	S 17°21.9'	55°06.2'	N 23°51.9'			
20	177°42.3'	120°52.2'	N 19°56.7'	105°58.4'	N 22°47.8'	204°44.2'	S 12°01.4'	221°32.7'	S 17°21.9'	70°07.0'	N 23°51.7'			
21	192°44.8'	135°52.2'	N 19°57.3'	120°57.5'	N 22°48.3'	219°46.4'	S 12°01.3'	236°35.2'	S 17°21.9'	85°07.9'	N 23°51.6'			
22	207°47.2'	150°52.2'	N 19°57.8'	135°56.7'	N 22°48.8'	234°48.6'	S 12°01.2'	251°37.6'	S 17°21.9'	100°08.7'	N 23°51.4'			
23	222°49.7'	165°52.1'	N 19°58.3'	150°55.9'	N 22°49.2'	249°50.9'	S 12°01.2'	266°40.1'	S 17°21.9'	115°09.5'	N 23°51.2'			
		SD 15.8'	d 0.5'	v -0.8'	d 0.5'	v 2.2'	d 0.1'	v 2.4'	d -0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 31 s		12 h 56 m		6 h 23 m		5 h 16 m		15 h 20 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Mars	+Sun
0	94°15.6'	N 19°54.3'	10.7'	-9.2'	56.4'	90°03.0'	66°52.7'	65°51.5'	12°20.6'	25°00.9'	30°33.6'	33°10.6'	80°22.2'
1	108°45.3'	N 19°45.1'	10.7'	-9.3'	56.5'	89°44.7'	66°24.7'	65°19.6'	11°51.1'	25°32.8'	30°57.7'	33°41.2'	80°51.9'
2	123°15.0'	N 19°35.8'	10.8'	-9.4'	56.5'	89°26.3'	65°56.7'	64°47.6'	11°21.7'	26°04.7'	31°22.1'	34°11.8'	81°21.7'
3	137°44.8'	N 19°26.4'	10.8'	-9.5'	56.5'	89°07.9'	65°28.7'	64°15.6'	10°52.6'	26°36.7'	31°46.7'	34°42.4'	81°51.5'
4	152°14.6'	N 19°16.9'	10.8'	-9.6'	56.6'	88°49.5'	65°00.7'	63°43.6'	10°23.8'	27°08.7'	32°11.6'	35°13.1'	82°21.4'
5	166°44.4'	N 19°07.3'	10.9'	-9.7'	56.6'	88°31.0'	64°32.8'	63°11.5'	9°55.2'	27°40.8'	32°36.6'	35°43.9'	82°51.2'
6	181°14.3'	N 18°57.6'	10.9'	-9.8'	56.6'	88°12.6'	64°04.8'	62°39.4'	9°27.1'	28°12.9'	33°01.9'	36°14.6'	83°21.2'
7	195°44.1'	N 18°47.8'	10.9'	-9.9'	56.7'	87°54.1'	63°36.8'	62°07.3'	8°59.3'	28°45.0'	33°27.4'	36°45.4'	83°51.1'
8	210°14.0'	N 18°37.8'	10.9'	-10.0'	56.7'	87°35.6'	63°08.8'	61°35.1'	8°32.1'	29°17.2'	33°53.1'	37°16.3'	84°21.1'
9	224°44.0'	N 18°27.8'	11.0'	-10.1'	56.7'	87°17.1'	62°40.9'	61°02.9'	8°05.4'	29°49.5'	34°19.0'	37°47.2'	84°51.1'
10	239°13.9'	N 18°17.7'	11.0'	-10.2'	56.8'	86°58.6'	62°12.9'	60°30.6'		30°21.8'	34°45.1'	38°18.1'	85°21.2'
11	253°43.9'	N 18°07.4'	11.0'	-10.3'	56.8'	86°40.1'	61°45.0'	59°58.3'		30°54.1'	35°11.3'	38°49.0'	85°51.3'
12	268°13.9'	N 17°57.1'	11.0'	-10.4'	56.8'	86°21.6'	61°17.1'	59°26.0'		31°26.5'	35°37.8'	39°20.0'	86°21.5'
13	282°43.9'	N 17°46.6'	11.1'	-10.6'	56.9'	86°03.0'	60°49.2'	58°53.7'		31°58.9'	36°04.4'	39°51.1'	86°51.7'
14	297°14.0'	N 17°36.1'	11.1'	-10.7'	56.9'	85°44.5'	60°21.3'	58°21.3'		32°31.4'	36°31.2'	40°22.2'	87°21.9'
15	311°44.1'	N 17°25.4'	11.1'	-10.8'	56.9'	85°25.9'	59°53.4'	57°48.8'		33°03.9'	36°58.1'	40°53.3'	87°52.1'
16	326°14.2'	N 17°14.7'	11.1'	-10.8'	57.0'	85°07.4'	59°25.5'	57°16.4'		33°36.4'	37°25.3'	41°24.4'	88°22.4'
17	340°44.3'	N 17°03.8'	11.2'	-10.9'	57.0'	84°48.8'	58°57.6'	56°43.9'		34°09.0'	37°52.6'	41°55.6'	88°52.8'
18	355°14.5'	N 16°52.9'	11.2'	-11.0'	57.0'	84°30.2'	58°29.8'	56°11.3'		34°41.6'	38°20.0'	42°26.9'	89°23.2'
19	9°44.6'	N 16°41.8'	11.2'	-11.1'	57.1'	84°11.7'	58°02.0'	55°38.8'		35°14.3'	38°47.6'	42°58.1'	89°53.6'
20	24°14.8'	N 16°30.7'	11.2'	-11.2'	57.1'	83°53.1'	57°34.2'	55°06.2'		35°47.0'	39°15.3'	43°29.5'	90°24.1'
21	38°45.1'	N 16°19.5'	11.2'	-11.3'	57.1'	83°34.5'	57°06.4'	54°33.5'		36°19.8'	39°43.2'	44°00.8'	90°54.6'
22	53°15.3'	N 16°08.1'	11.3'	-11.4'	57.2'	83°16.0'	56°38.7'	54°00.8'		36°52.6'	40°11.2'	44°32.2'	91°25.1'
23	67°45.6'	N 15°56.7'	11.3'	-11.5'	57.2'	82°57.4'	56°10.9'	53°28.1'		37°25.5'	40°39.4'	45°03.7'	91°55.7'
Mer. pass.		18 h 20 m SD 15.4'		phase 42%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.9'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	237°52.2'	180°52.1' N	19°58.8'	165°55.1' N	22°49.7'	264°53.1' S	12°01.1'	281°42.5' S	17°21.9'	130°10.3' N	23°51.0'			
1	252°54.6'	195°52.1' N	19°59.3'	180°54.3' N	22°50.2'	279°55.3' S	12°01.0'	296°45.0' S	17°21.9'	145°11.1' N	23°50.8'			
2	267°57.1'	210°52.0' N	19°59.9'	195°53.4' N	22°50.7'	294°57.5' S	12°00.9'	311°47.4' S	17°21.9'	160°11.9' N	23°50.6'			
3	282°59.6'	225°52.0' N	20°00.4'	210°52.6' N	22°51.1'	309°59.8' S	12°00.9'	326°49.9' S	17°21.9'	175°12.7' N	23°50.4'			
4	298°02.0'	240°52.0' N	20°00.9'	225°51.8' N	22°51.6'	325°02.0' S	12°00.8'	341°52.3' S	17°21.9'	190°13.5' N	23°50.2'			
5	313°04.5'	255°51.9' N	20°01.4'	240°51.0' N	22°52.1'	340°04.2' S	12°00.7'	356°54.8' S	17°21.9'	205°14.3' N	23°50.0'			
6	328°06.9'	270°51.9' N	20°01.9'	255°50.1' N	22°52.6'	355°06.5' S	12°00.6'	11°57.2' S	17°21.9'	220°15.1' N	23°49.8'			
7	343°09.4'	285°51.8' N	20°02.5'	270°49.3' N	22°53.0'	10°08.7' S	12°00.6'	26°59.7' S	17°21.9'	235°15.9' N	23°49.6'			
8	358°11.9'	300°51.8' N	20°03.0'	285°48.5' N	22°53.5'	25°10.9' S	12°00.5'	42°02.1' S	17°21.9'	250°16.7' N	23°49.4'			
9	13°14.3'	315°51.8' N	20°03.5'	300°47.7' N	22°54.0'	40°13.2' S	12°00.4'	57°04.6' S	17°21.9'	265°17.5' N	23°49.2'			
10	28°16.8'	330°51.7' N	20°04.0'	315°46.8' N	22°54.4'	55°15.4' S	12°00.4'	72°07.0' S	17°21.9'	280°18.3' N	23°49.0'			
11	43°19.3'	345°51.7' N	20°04.5'	330°46.0' N	22°54.9'	70°17.7' S	12°00.3'	87°09.5' S	17°21.9'	295°19.1' N	23°48.8'			
12	58°21.7'	0°51.7' N	20°05.0'	345°45.2' N	22°55.4'	85°19.9' S	12°00.2'	102°11.9' S	17°21.9'	310°19.9' N	23°48.7'			
13	73°24.2'	15°51.6' N	20°05.5'	0°44.3' N	22°55.8'	100°22.1' S	12°00.1'	117°14.4' S	17°21.9'	325°20.7' N	23°48.5'			
14	88°26.7'	30°51.6' N	20°06.1'	15°43.5' N	22°56.3'	115°24.4' S	12°00.1'	132°16.8' S	17°21.9'	340°21.5' N	23°48.3'			
15	103°29.1'	45°51.5' N	20°06.6'	30°42.7' N	22°56.8'	130°26.6' S	11°60.0'	147°19.3' S	17°21.9'	355°22.4' N	23°48.1'			
16	118°31.6'	60°51.5' N	20°07.1'	45°41.9' N	22°57.2'	145°28.8' S	11°59.9'	162°21.7' S	17°21.9'	10°23.2' N	23°47.9'			
17	133°34.1'	75°51.5' N	20°07.6'	60°41.0' N	22°57.7'	160°31.1' S	11°59.8'	177°24.2' S	17°21.9'	25°24.0' N	23°47.7'			
18	148°36.5'	90°51.4' N	20°08.1'	75°40.2' N	22°58.1'	175°33.3' S	11°59.8'	192°26.6' S	17°21.9'	40°24.8' N	23°47.5'			
19	163°39.0'	105°51.4' N	20°08.6'	90°39.4' N	22°58.6'	190°35.5' S	11°59.7'	207°29.1' S	17°21.9'	55°25.6' N	23°47.3'			
20	178°41.4'	120°51.3' N	20°09.1'	105°38.5' N	22°59.1'	205°37.8' S	11°59.6'	222°31.5' S	17°21.9'	70°26.4' N	23°47.1'			
21	193°43.9'	135°51.3' N	20°09.6'	120°37.7' N	22°59.5'	220°40.0' S	11°59.5'	237°34.0' S	17°21.9'	85°27.2' N	23°46.9'			
22	208°46.4'	150°51.3' N	20°10.1'	135°36.9' N	22°60.0'	235°42.3' S	11°59.5'	252°36.4' S	17°21.9'	100°28.0' N	23°46.7'			
23	223°48.8'	165°51.2' N	20°10.7'	150°36.0' N	22°60.4'	250°44.5' S	11°59.4'	267°38.9' S	17°21.9'	115°28.8' N	23°46.5'			
		SD 15.8' d 0.5'		v -0.8' d 0.5'		v 2.2' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'				
Mer. pass.		11 h 56 m 34 s		12 h 57 m		6 h 20 m		5 h 12 m		15 h 19 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	82°15.9' N	15°45.2'	11.3'	-11.6'	57.2'	88°14.1'	82°38.8'	55°43.2'	52°55.3'		37°58.4'	41°07.7'	92°26.3'
1	96°46.2' N	15°33.5'	11.3'	-11.7'	57.3'	87°51.0'	82°20.3'	55°15.6'	52°22.6'		38°31.3'	41°36.1'	92°57.0'
2	111°16.5' N	15°21.8'	11.3'	-11.8'	57.3'	87°27.7'	82°01.7'	54°47.9'	51°49.7'		39°04.3'	42°04.6'	93°27.7'
3	125°46.8' N	15°10.0'	11.4'	-11.9'	57.4'	87°04.5'	81°43.2'	54°20.3'	51°16.8'		39°37.4'	42°33.3'	93°58.5'
4	140°17.2' N	14°58.1'	11.4'	-12.0'	57.4'	86°41.2'	81°24.6'	53°52.8'	50°43.9'		40°10.4'	43°02.1'	94°29.3'
5	154°47.6' N	14°46.2'	11.4'	-12.1'	57.4'	86°18.0'	81°06.1'	53°25.2'	50°11.0'		40°43.6'	43°31.0'	95°00.1'
6	169°18.0' N	14°34.1'	11.4'	-12.2'	57.5'	85°54.7'	80°47.6'	52°57.8'	49°38.0'		41°16.7'	44°00.1'	95°31.0'
7	183°48.4' N	14°21.9'	11.4'	-12.2'	57.5'	85°31.3'	80°29.1'	52°30.3'	49°05.0'		41°50.0'	44°29.2'	96°01.9'
8	198°18.8' N	14°09.7'	11.5'	-12.3'	57.5'	85°08.0'	80°10.6'	52°02.9'	48°31.9'		42°23.2'	44°58.5'	96°32.9'
9	212°49.3' N	13°57.4'	11.5'	-12.4'	57.6'	84°44.7'	79°52.1'	51°35.6'	47°58.9'		42°56.5'	45°27.9'	97°03.9'
10	227°19.8' N	13°44.9'	11.5'	-12.5'	57.6'	84°21.3'	79°33.7'	51°08.3'	47°25.7'	8°34.4'	43°29.9'	45°57.4'	97°34.9'
11	241°50.3' N	13°32.4'	11.5'	-12.6'	57.6'	83°57.9'	79°15.2'	50°41.0'	46°52.6'	9°02.6'	44°03.3'	46°27.0'	98°06.0'
12	256°20.8' N	13°19.8'	11.5'	-12.7'	57.7'	83°34.5'	78°56.8'	50°13.8'	46°19.3'	9°31.5'	44°36.7'	46°56.7'	98°37.2'
13	270°51.3' N	13°07.2'	11.5'	-12.8'	57.7'	83°11.1'	78°38.4'	49°46.7'	45°46.1'	10°00.8'	45°10.2'	47°26.5'	99°08.4'
14	285°21.8' N	12°54.4'	11.5'	-12.8'	57.8'	82°47.7'	78°20.1'	49°19.6'	45°12.8'	10°30.6'	45°43.7'	47°56.4'	99°39.6'
15	299°52.3' N	12°41.6'	11.6'	-12.9'	57.8'	82°24.3'	78°01.7'	48°52.6'	44°39.5'	11°00.8'	46°17.3'	48°26.5'	100°10.9'
16	314°22.9' N	12°28.7'	11.6'	-13.0'	57.8'	82°00.9'	77°43.4'	48°25.7'	44°06.2'	11°31.4'	46°50.9'	48°56.6'	100°42.2'
17	328°53.4' N	12°15.7'	11.6'	-13.1'	57.9'	81°37.4'	77°25.1'	47°58.8'	43°32.8'	12°02.3'	47°24.6'	49°26.8'	101°13.5'
18	343°24.0' N	12°02.6'	11.6'	-13.2'	57.9'	81°14.0'	77°06.8'	47°32.0'	42°59.3'	12°33.4'	47°58.3'	49°57.1'	101°45.0'
19	357°54.6' N	11°49.5'	11.6'	-13.2'	57.9'	80°50.5'	76°48.6'	47°05.3'	42°25.9'	13°04.9'	48°32.1'	50°27.5'	102°16.4'
20	12°25.2' N	11°36.2'	11.6'	-13.3'	58.0'	80°27.1'	76°30.3'	46°38.7'	41°52.4'	13°36.5'	49°05.9'	50°58.0'	102°47.9'
21	26°55.8' N	11°22.9'	11.6'	-13.4'	58.0'	80°03.6'	76°12.2'	46°12.1'	41°18.8'	14°08.4'	49°39.8'	51°28.6'	103°19.4'
22	41°26.4' N	11°09.5'	11.6'	-13.5'	58.1'	79°40.2'	75°54.0'	45°45.7'	40°45.3'	14°40.5'	50°13.7'	51°59.3'	103°51.0'
23	55°57.0' N	10°56.1'	11.6'	-13.5'	58.1'	79°16.7'	75°35.9'	45°19.3'	40°11.7'	15°12.7'	50°47.6'	52°30.0'	104°22.7'
Mer. pass.		19 h 9 m SD 15.6'		phase 52%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9' S	29°30.5'	Spica	+1.0	158°25.2' S	11°16.4'	Betelgeuse	+0.5	270°55.6' N	7°24.6'
Deneb	+1.2	49°27.6' N	45°21.1'	Acrux	+0.8	173°02.9' S	63°13.2'	Capella	+0.1	280°26.8' N	46°01.1'
Altair	+0.8	62°02.7' N	8°55.4'	Regulus	+1.4	207°37.6' N	11°51.8'	Rigel	+0.2	281°07.1' S	8°10.8'
Vega	+0.0	80°34.9' N	38°48.0'	Pollux	+1.2	243°21.2' N	27°58.5'	Aldebaran	+0.9	290°43.4' N	16°33.0'
Antares	+1.1	112°19.1' S	26°28.7'	Procyon	+0.4	244°54.2' N	5°10.2'	Polaris	+2.0	315°51.8' N	89°21.1'
Rigil Kent	-0.0	139°43.7' S	60°55.4'	Adhara	+1.5	255°08.5' S	29°00.2'	Achernar	+0.5	335°23.0' S	57°07.7'
Arcturus	-0.1	145°50.4' N	19°04.4'	Sirius	-1.4	258°29.1' S	16°44.9'				
Hadar	+0.6	148°39.6' S	60°28.6'	Canopus	-0.6	263°54.2' S	52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	238°51.3'	180°51.2' N	20°11.2'	165°35.2' N	23°00.9'	265°46.7' S	11°59.3'	282°41.3' S	17°21.9'	130°29.6' N	23°46.3'	
1	253°53.8'	195°51.1' N	20°11.7'	180°34.4' N	23°01.3'	280°49.0' S	11°59.3'	297°43.8' S	17°21.9'	145°30.4' N	23°46.1'	
2	268°56.2'	210°51.1' N	20°12.2'	195°33.6' N	23°01.8'	295°51.2' S	11°59.2'	312°46.2' S	17°22.0'	160°31.2' N	23°45.9'	
3	283°58.7'	225°51.1' N	20°12.7'	210°32.7' N	23°02.2'	310°53.5' S	11°59.1'	327°48.7' S	17°22.0'	175°32.0' N	23°45.7'	
4	299°01.2'	240°51.0' N	20°13.2'	225°31.9' N	23°02.7'	325°55.7' S	11°59.0'	342°51.1' S	17°22.0'	190°32.8' N	23°45.5'	
5	314°03.6'	255°51.0' N	20°13.7'	240°31.1' N	23°03.1'	340°57.9' S	11°59.0'	357°53.6' S	17°22.0'	205°33.6' N	23°45.3'	
6	329°06.1'	270°50.9' N	20°14.2'	255°30.2' N	23°03.6'	356°00.2' S	11°58.9'	12°56.0' S	17°22.0'	220°34.5' N	23°45.1'	
7	344°08.5'	285°50.9' N	20°14.7'	270°29.4' N	23°04.0'	11°02.4' S	11°58.8'	27°58.5' S	17°22.0'	235°35.3' N	23°44.9'	
8	359°11.0'	300°50.8' N	20°15.2'	285°28.6' N	23°04.4'	26°04.7' S	11°58.8'	43°01.0' S	17°22.0'	250°36.1' N	23°44.7'	
9	14°13.5'	315°50.8' N	20°15.7'	300°27.7' N	23°04.9'	41°06.9' S	11°58.7'	58°03.4' S	17°22.0'	265°36.9' N	23°44.5'	
10	29°15.9'	330°50.8' N	20°16.2'	315°26.9' N	23°05.3'	56°09.1' S	11°58.6'	73°05.9' S	17°22.0'	280°37.7' N	23°44.3'	
11	44°18.4'	345°50.7' N	20°16.7'	330°26.0' N	23°05.8'	71°11.4' S	11°58.5'	88°08.3' S	17°22.0'	295°38.5' N	23°44.1'	
12	59°20.9'	0°50.7' N	20°17.2'	345°25.2' N	23°06.2'	86°13.6' S	11°58.5'	103°10.8' S	17°22.0'	310°39.3' N	23°43.9'	
13	74°23.3'	15°50.6' N	20°17.7'	0°24.4' N	23°06.6'	101°15.9' S	11°58.4'	118°13.2' S	17°22.0'	325°40.1' N	23°43.7'	
14	89°25.8'	30°50.6' N	20°18.2'	15°23.5' N	23°07.1'	116°18.1' S	11°58.3'	133°15.7' S	17°22.0'	340°40.9' N	23°43.5'	
15	104°28.3'	45°50.5' N	20°18.7'	30°22.7' N	23°07.5'	131°20.3' S	11°58.3'	148°18.1' S	17°22.0'	355°41.7' N	23°43.3'	
16	119°30.7'	60°50.5' N	20°19.2'	45°21.9' N	23°07.9'	146°22.6' S	11°58.2'	163°20.6' S	17°22.0'	10°42.5' N	23°43.1'	
17	134°33.2'	75°50.5' N	20°19.7'	60°21.0' N	23°08.4'	161°24.8' S	11°58.1'	178°23.0' S	17°22.0'	25°43.3' N	23°42.9'	
18	149°35.7'	90°50.4' N	20°20.2'	75°20.2' N	23°08.8'	176°27.1' S	11°58.0'	193°25.5' S	17°22.0'	40°44.1' N	23°42.7'	
19	164°38.1'	105°50.4' N	20°20.7'	90°19.4' N	23°09.2'	191°29.3' S	11°58.0'	208°28.0' S	17°22.0'	55°44.9' N	23°42.4'	
20	179°40.6'	120°50.3' N	20°21.2'	105°18.5' N	23°09.7'	206°31.6' S	11°57.9'	223°30.4' S	17°22.0'	70°45.8' N	23°42.2'	
21	194°43.0'	135°50.3' N	20°21.7'	120°17.7' N	23°10.1'	221°33.8' S	11°57.8'	238°32.9' S	17°22.0'	85°46.6' N	23°42.0'	
22	209°45.5'	150°50.2' N	20°22.2'	135°16.8' N	23°10.5'	236°36.1' S	11°57.8'	253°35.3' S	17°22.0'	100°47.4' N	23°41.8'	
23	224°48.0'	165°50.2' N	20°22.7'	150°16.0' N	23°10.9'	251°38.3' S	11°57.7'	268°37.8' S	17°22.0'	115°48.2' N	23°41.6'	
		SD 15.8' d 0.5'		v -0.8' d 0.4'		v 2.2' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'		
Mer. pass.		11 h 56 m 38 s		12 h 58 m		6 h 16 m		5 h 8 m		15 h 17 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	70°27.6'	N 10°42.6'	11.6'	-13.6'	58.1'	78°53.3'	75°17.8'	44°53.1'	39°38.0'	15°45.1'	51°21.6'	53°00.9'	104°54.3'
1	84°58.2'	N 10°29.0'	11.6'	-13.7'	58.2'	78°29.8'	74°59.8'	44°26.9'	39°04.4'	16°17.7'	51°55.7'	53°31.8'	105°26.1'
2	99°28.9'	N 10°15.3'	11.6'	-13.7'	58.2'	78°06.4'	74°41.8'	44°00.8'	38°30.7'	16°50.4'	52°29.7'	54°02.9'	105°57.8'
3	113°59.5'	N 10°01.6'	11.6'	-13.8'	58.2'	77°42.9'	74°23.9'	43°34.9'	37°56.9'	17°23.2'	53°03.9'	54°34.0'	106°29.7'
4	128°30.1'	N 9°47.7'	11.6'	-13.9'	58.3'	77°19.5'	74°06.0'	43°09.1'	37°23.1'	17°56.2'	53°38.1'	55°05.2'	107°01.5'
5	143°00.8'	N 9°33.9'	11.6'	-13.9'	58.3'	76°56.1'	73°48.1'	42°43.4'	36°49.3'	18°29.3'	54°12.3'	55°36.5'	107°33.4'
6	157°31.4'	N 9°19.9'	11.6'	-14.0'	58.4'	76°32.7'	73°30.3'	42°17.9'	36°15.5'	19°02.5'	54°46.6'	56°07.8'	108°05.4'
7	172°02.0'	N 9°05.9'	11.6'	-14.1'	58.4'	76°09.3'	73°12.6'	41°52.4'	35°41.6'	19°35.8'	55°20.9'	56°39.3'	108°37.4'
8	186°32.7'	N 8°51.8'	11.6'	-14.1'	58.4'	75°45.9'	72°54.9'	41°27.1'	35°07.7'	20°09.2'	55°55.3'	57°10.8'	109°09.4'
9	201°03.3'	N 8°37.7'	11.6'	-14.2'	58.5'	75°22.6'	72°37.2'	41°02.0'	34°33.8'	20°42.8'	56°29.7'	57°42.4'	109°41.5'
10	215°33.9'	N 8°23.5'	11.6'	-14.3'	58.5'	74°59.2'	72°19.6'	40°37.0'	33°59.8'	21°16.4'	57°04.2'	58°14.1'	110°13.7'
11	230°04.6'	N 8°09.2'	11.6'	-14.3'	58.6'	74°35.9'	72°02.1'	40°12.2'	33°25.8'	21°50.1'	57°38.7'	58°45.8'	110°45.9'
12	244°35.2'	N 7°54.9'	11.6'	-14.4'	58.6'	74°12.6'	71°44.6'	39°47.6'	32°51.8'	22°23.9'	58°13.2'	59°17.7'	111°18.1'
13	259°05.8'	N 7°40.5'	11.6'	-14.4'	58.6'	73°49.3'	71°27.2'	39°23.1'	32°17.8'	22°57.8'	58°47.8'	59°49.6'	111°50.4'
14	273°36.4'	N 7°26.1'	11.6'	-14.5'	58.7'	73°26.0'	71°09.9'	38°58.8'	31°43.7'	23°31.7'	59°22.5'	60°21.6'	112°22.7'
15	288°07.0'	N 7°11.6'	11.6'	-14.6'	58.7'	73°02.8'	70°52.6'	38°34.7'	31°09.6'	24°05.7'	59°57.2'	60°53.6'	112°55.1'
16	302°37.6'	N 6°57.0'	11.6'	-14.6'	58.7'	72°39.6'	70°35.4'	38°10.8'	30°35.5'	24°39.9'	60°32.0'	61°25.7'	113°27.5'
17	317°08.2'	N 6°42.4'	11.6'	-14.7'	58.8'	72°16.4'	70°18.2'	37°47.1'	30°01.4'	25°14.1'	61°06.8'	61°57.9'	113°60.0'
18	331°38.7'	N 6°27.8'	11.6'	-14.7'	58.8'	71°53.3'	70°01.2'	37°23.6'	29°27.2'	25°48.3'	61°41.6'	62°30.2'	114°32.5'
19	346°09.3'	N 6°13.1'	11.5'	-14.8'	58.9'	71°30.2'	69°44.2'	37°00.4'	28°53.0'	26°22.7'	62°16.5'	63°02.5'	115°05.0'
20	0°39.8'	N 5°58.3'	11.5'	-14.8'	58.9'	71°07.1'	69°27.3'	36°37.4'	28°18.8'	26°57.1'	62°51.4'	63°34.9'	115°37.6'
21	15°10.4'	N 5°43.5'	11.5'	-14.9'	58.9'	70°44.1'	69°10.5'	36°14.6'	27°44.6'	27°31.6'	63°26.4'	64°07.4'	116°10.3'
22	29°40.9'	N 5°28.6'	11.5'	-14.9'	59.0'	70°21.1'	68°53.7'	35°52.1'	27°10.4'	28°06.1'	64°01.5'	64°40.0'	116°43.0'
23	44°11.4'	N 5°13.7'	11.5'	-15.0'	59.0'	69°58.1'	68°37.0'	35°29.8'	26°36.2'	28°40.7'	64°36.5'	65°12.6'	117°15.7'
Mer. pass.		19 h 57 m SD 15.9'		phase 63%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.7'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	239°50.4'	180°50.1'	N 20°23.2'	165°15.2'	N 23°11.4'	266°40.5'	S 11°57.6'	283°40.2'	S 17°22.0'	130°49.0'	N 23°41.4'			
1	254°52.9'	195°50.1'	N 20°23.6'	180°14.3'	N 23°11.8'	281°42.8'	S 11°57.5'	298°42.7'	S 17°22.0'	145°49.8'	N 23°41.2'			
2	269°55.4'	210°50.0'	N 20°24.1'	195°13.5'	N 23°12.2'	296°45.0'	S 11°57.5'	313°45.1'	S 17°22.0'	160°50.6'	N 23°41.0'			
3	284°57.8'	225°50.0'	N 20°24.6'	210°12.6'	N 23°12.6'	311°47.3'	S 11°57.4'	328°47.6'	S 17°22.0'	175°51.4'	N 23°40.8'			
4	300°00.3'	240°50.0'	N 20°25.1'	225°11.8'	N 23°13.1'	326°49.5'	S 11°57.3'	343°50.1'	S 17°22.0'	190°52.2'	N 23°40.6'			
5	315°02.8'	255°49.9'	N 20°25.6'	240°11.0'	N 23°13.5'	341°51.8'	S 11°57.3'	358°52.5'	S 17°22.1'	205°53.0'	N 23°40.4'			
6	330°05.2'	270°49.9'	N 20°26.1'	255°10.1'	N 23°13.9'	356°54.0'	S 11°57.2'	13°55.0'	S 17°22.1'	220°53.8'	N 23°40.2'			
7	345°07.7'	285°49.8'	N 20°26.6'	270°09.3'	N 23°14.3'	11°56.3'	S 11°57.1'	28°57.4'	S 17°22.1'	235°54.6'	N 23°40.0'			
8	0°10.2'	300°49.8'	N 20°27.1'	285°08.4'	N 23°14.7'	26°58.5'	S 11°57.1'	43°59.9'	S 17°22.1'	250°55.5'	N 23°39.8'			
9	15°12.6'	315°49.7'	N 20°27.6'	300°07.6'	N 23°15.1'	42°00.8'	S 11°57.0'	59°02.4'	S 17°22.1'	265°56.3'	N 23°39.6'			
10	30°15.1'	330°49.7'	N 20°28.0'	315°06.8'	N 23°15.5'	57°03.0'	S 11°56.9'	74°04.8'	S 17°22.1'	280°57.1'	N 23°39.3'			
11	45°17.5'	345°49.6'	N 20°28.5'	330°05.9'	N 23°16.0'	72°05.3'	S 11°56.9'	89°07.3'	S 17°22.1'	295°57.9'	N 23°39.1'			
12	60°20.0'	0°49.6'	N 20°29.0'	345°05.1'	N 23°16.4'	87°07.5'	S 11°56.8'	104°09.7'	S 17°22.1'	310°58.7'	N 23°38.9'			
13	75°22.5'	15°49.5'	N 20°29.5'	0°04.2'	N 23°16.8'	102°09.8'	S 11°56.7'	119°12.2'	S 17°22.1'	325°59.5'	N 23°38.7'			
14	90°24.9'	30°49.5'	N 20°30.0'	15°03.4'	N 23°17.2'	117°12.0'	S 11°56.6'	134°14.6'	S 17°22.1'	341°00.3'	N 23°38.5'			
15	105°27.4'	45°49.4'	N 20°30.5'	30°02.5'	N 23°17.6'	132°14.2'	S 11°56.6'	149°17.1'	S 17°22.1'	356°01.1'	N 23°38.3'			
16	120°29.9'	60°49.4'	N 20°31.0'	45°01.7'	N 23°18.0'	147°16.5'	S 11°56.5'	164°19.6'	S 17°22.1'	11°01.9'	N 23°38.1'			
17	135°32.3'	75°49.3'	N 20°31.4'	60°00.9'	N 23°18.4'	162°18.7'	S 11°56.4'	179°22.0'	S 17°22.1'	26°02.7'	N 23°37.9'			
18	150°34.8'	90°49.3'	N 20°31.9'	75°00.0'	N 23°18.8'	177°21.0'	S 11°56.4'	194°24.5'	S 17°22.1'	41°03.5'	N 23°37.7'			
19	165°37.3'	105°49.2'	N 20°32.4'	89°59.2'	N 23°19.2'	192°23.2'	S 11°56.3'	209°26.9'	S 17°22.1'	56°04.4'	N 23°37.5'			
20	180°39.7'	120°49.2'	N 20°32.9'	104°58.3'	N 23°19.6'	207°25.5'	S 11°56.2'	224°29.4'	S 17°22.1'	71°05.2'	N 23°37.2'			
21	195°42.2'	135°49.1'	N 20°33.4'	119°57.5'	N 23°20.0'	222°27.7'	S 11°56.2'	239°31.9'	S 17°22.1'	86°06.0'	N 23°37.0'			
22	210°44.6'	150°49.1'	N 20°33.8'	134°56.6'	N 23°20.4'	237°30.0'	S 11°56.1'	254°34.3'	S 17°22.1'	101°06.8'	N 23°36.8'			
23	225°47.1'	165°49.0'	N 20°34.3'	149°55.8'	N 23°20.8'	252°32.3'	S 11°56.0'	269°36.8'	S 17°22.1'	116°07.6'	N 23°36.6'			
		SD 15.8'	d 0.5'	v -0.8'	d 0.4'	v 2.2'	d 0.1'	v 2.5'	d -0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 43 s		13 h 0 m		6 h 12 m		5 h 5 m		15 h 16 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sun
0	58°41.9'	N 4°58.7'	11.5'	-15.0'	59.0'	69°35.2'	68°20.5'	35°07.9'	26°02.0'	29°15.4'	65°11.7'	65°45.2'	117°48.5'
1	73°12.3'	N 4°43.7'	11.4'	-15.1'	59.1'	69°12.4'	68°04.0'	34°46.2'	25°27.7'	29°50.1'	65°46.9'	66°18.0'	118°21.4'
2	87°42.8'	N 4°28.7'	11.4'	-15.1'	59.1'	68°49.6'	67°47.6'	34°24.8'	24°53.5'	30°24.9'	66°22.1'	66°50.8'	118°54.3'
3	102°13.2'	N 4°13.6'	11.4'	-15.1'	59.2'	68°26.8'	67°31.3'	34°03.7'	24°19.2'	30°59.8'	66°57.4'	67°23.7'	119°27.2'
4	116°43.6'	N 3°58.4'	11.4'	-15.2'	59.2'	68°04.1'	67°15.1'	33°42.9'	23°45.0'	31°34.7'	67°32.7'	67°56.6'	
5	131°14.0'	N 3°43.3'	11.4'	-15.2'	59.2'	67°41.5'	66°59.0'	33°22.5'	23°10.8'	32°09.7'	68°08.0'	68°29.6'	
6	145°44.4'	N 3°28.0'	11.3'	-15.3'	59.3'	67°18.9'	66°43.0'	33°02.4'	22°36.6'	32°44.8'	68°43.4'	69°02.7'	
7	160°14.7'	N 3°12.8'	11.3'	-15.3'	59.3'	66°56.4'	66°27.1'	32°42.7'	22°02.4'	33°19.9'	69°18.9'	69°35.8'	
8	174°45.0'	N 2°57.5'	11.3'	-15.3'	59.3'	66°33.9'	66°11.3'	32°23.4'	21°28.2'	33°55.1'	69°54.4'	70°09.0'	
9	189°15.3'	N 2°42.2'	11.3'	-15.4'	59.4'	66°11.5'	65°55.6'	32°04.4'	20°54.1'	34°30.3'	70°30.0'	70°42.2'	
10	203°45.6'	N 2°26.8'	11.2'	-15.4'	59.4'	65°49.2'	65°40.1'	31°45.9'	20°20.0'	35°05.6'	71°05.6'	71°15.5'	
11	218°15.8'	N 2°11.4'	11.2'	-15.4'	59.4'	65°27.0'	65°24.6'	31°27.7'	19°45.9'	35°40.9'	71°41.2'	71°48.9'	
12	232°46.0'	N 1°56.0'	11.2'	-15.5'	59.5'	65°04.8'	65°09.3'	31°10.0'	19°11.9'	36°16.3'	72°16.9'	72°22.3'	
13	247°16.1'	N 1°40.5'	11.1'	-15.5'	59.5'	64°42.7'	64°54.1'	30°52.8'	18°37.9'	36°51.7'	72°52.6'	72°55.8'	
14	261°46.3'	N 1°25.0'	11.1'	-15.5'	59.6'	64°20.7'		30°36.0'	18°04.1'	37°27.2'	73°28.4'	73°29.3'	
15	276°16.4'	N 1°09.5'	11.1'	-15.5'	59.6'	63°58.8'		30°19.7'	17°30.3'	38°02.8'	74°04.2'	74°02.9'	
16	290°46.4'	N 0°54.0'	11.0'	-15.6'	59.6'	63°36.9'		30°03.8'	16°56.6'	38°38.4'	74°40.1'	74°36.5'	
17	305°16.5'	N 0°38.4'	11.0'	-15.6'	59.7'	63°15.2'			16°23.0'	39°14.1'	75°16.0'	75°10.2'	
18	319°46.5'	N 0°22.9'	11.0'	-15.6'	59.7'	62°53.5'			15°49.5'	39°49.8'	75°52.0'	75°44.0'	
19	334°16.4'	N 0°07.3'	10.9'	-15.6'	59.7'	62°32.0'			15°16.2'	40°25.5'	76°28.0'	76°17.8'	
20	348°46.3'	S 0°08.4'	10.9'	-15.6'	59.8'	62°10.5'			14°43.1'	41°01.4'	77°04.0'	76°51.6'	
21	3°16.2'	S 0°24.0'	10.8'	-15.7'	59.8'	61°49.2'			14°10.1'	41°37.2'	77°40.1'	77°25.5'	
22	17°46.0'	S 0°39.7'	10.8'	-15.7'	59.8'	61°27.9'			13°37.4'	42°13.1'	78°16.3'	77°59.5'	
23	32°15.8'	S 0°55.3'	10.7'	-15.7'	59.9'	61°06.8'			13°05.0'	42°49.1'	78°52.4'	78°33.5'	
Mer. pass.		20 h 46 m SD 16.1'		phase 73%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.6'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	240°49.6'	180°49.0'	N 20°34.8'	164°54.9'	N 23°21.2'	267°34.5'	S 11°56.0'	284°39.2'	S 17°22.1'	131°08.4'	N 23°36.4'			
1	255°52.0'	195°48.9'	N 20°35.3'	179°54.1'	N 23°21.6'	282°36.8'	S 11°55.9'	299°41.7'	S 17°22.1'	146°09.2'	N 23°36.2'			
2	270°54.5'	210°48.9'	N 20°35.7'	194°53.2'	N 23°22.0'	297°39.0'	S 11°55.8'	314°44.2'	S 17°22.2'	161°10.0'	N 23°36.0'			
3	285°57.0'	225°48.8'	N 20°36.2'	209°52.4'	N 23°22.4'	312°41.3'	S 11°55.8'	329°46.6'	S 17°22.2'	176°10.8'	N 23°35.8'			
4	300°59.4'	240°48.8'	N 20°36.7'	224°51.6'	N 23°22.8'	327°43.5'	S 11°55.7'	344°49.1'	S 17°22.2'	191°11.6'	N 23°35.5'			
5	316°01.9'	255°48.7'	N 20°37.2'	239°50.7'	N 23°23.2'	342°45.8'	S 11°55.6'	359°51.5'	S 17°22.2'	206°12.5'	N 23°35.3'			
6	331°04.4'	270°48.7'	N 20°37.6'	254°49.9'	N 23°23.6'	357°48.0'	S 11°55.6'	14°54.0'	S 17°22.2'	221°13.3'	N 23°35.1'			
7	346°06.8'	285°48.6'	N 20°38.1'	269°49.0'	N 23°23.9'	12°50.3'	S 11°55.5'	29°56.5'	S 17°22.2'	236°14.1'	N 23°34.9'			
8	1°09.3'	300°48.6'	N 20°38.6'	284°48.2'	N 23°24.3'	27°52.5'	S 11°55.4'	44°58.9'	S 17°22.2'	251°14.9'	N 23°34.7'			
9	16°11.8'	315°48.5'	N 20°39.1'	299°47.3'	N 23°24.7'	42°54.8'	S 11°55.4'	60°01.4'	S 17°22.2'	266°15.7'	N 23°34.5'			
10	31°14.2'	330°48.5'	N 20°39.5'	314°46.5'	N 23°25.1'	57°57.0'	S 11°55.3'	75°03.9'	S 17°22.2'	281°16.5'	N 23°34.3'			
11	46°16.7'	345°48.4'	N 20°40.0'	329°45.6'	N 23°25.5'	72°59.3'	S 11°55.2'	90°06.3'	S 17°22.2'	296°17.3'	N 23°34.0'			
12	61°19.1'	0°48.3'	N 20°40.5'	344°44.8'	N 23°25.9'	88°01.5'	S 11°55.2'	105°08.8'	S 17°22.2'	311°18.1'	N 23°33.8'			
13	76°21.6'	15°48.3'	N 20°40.9'	359°43.9'	N 23°26.2'	103°03.8'	S 11°55.1'	120°11.2'	S 17°22.2'	326°18.9'	N 23°33.6'			
14	91°24.1'	30°48.2'	N 20°41.4'	14°43.1'	N 23°26.6'	118°06.1'	S 11°55.0'	135°13.7'	S 17°22.2'	341°19.8'	N 23°33.4'			
15	106°26.5'	45°48.2'	N 20°41.9'	29°42.2'	N 23°27.0'	133°08.3'	S 11°55.0'	150°16.2'	S 17°22.2'	356°20.6'	N 23°33.2'			
16	121°29.0'	60°48.1'	N 20°42.4'	44°41.4'	N 23°27.4'	148°10.6'	S 11°54.9'	165°18.6'	S 17°22.2'	11°21.4'	N 23°33.0'			
17	136°31.5'	75°48.1'	N 20°42.8'	59°40.5'	N 23°27.8'	163°12.8'	S 11°54.8'	180°21.1'	S 17°22.2'	26°22.2'	N 23°32.7'			
18	151°33.9'	90°48.0'	N 20°43.3'	74°39.7'	N 23°28.1'	178°15.1'	S 11°54.8'	195°23.6'	S 17°22.2'	41°23.0'	N 23°32.5'			
19	166°36.4'	105°48.0'	N 20°43.8'	89°38.8'	N 23°28.5'	193°17.3'	S 11°54.7'	210°26.0'	S 17°22.2'	56°23.8'	N 23°32.3'			
20	181°38.9'	120°47.9'	N 20°44.2'	104°38.0'	N 23°28.9'	208°19.6'	S 11°54.6'	225°28.5'	S 17°22.3'	71°24.6'	N 23°32.1'			
21	196°41.3'	135°47.9'	N 20°44.7'	119°37.1'	N 23°29.3'	223°21.9'	S 11°54.6'	240°31.0'	S 17°22.3'	86°25.4'	N 23°31.9'			
22	211°43.8'	150°47.8'	N 20°45.2'	134°36.3'	N 23°29.6'	238°24.1'	S 11°54.5'	255°33.4'	S 17°22.3'	101°26.2'	N 23°31.6'			
23	226°46.2'	165°47.7'	N 20°45.6'	149°35.4'	N 23°30.0'	253°26.4'	S 11°54.4'	270°35.9'	S 17°22.3'	116°27.1'	N 23°31.4'			
		SD 15.8'	d 0.5'	v -0.8'	d 0.4'	v 2.3'	d 0.1'	v 2.5'	d -0.0'	v 0.8'	d -0.2'			
Mer. pass.		11 h 56 m 48 s		13 h 1 m		6 h 9 m		5 h 1 m		15 h 15 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Rigil Kent	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Mars
0	46°45.6'	S 1°11.0'	10.7'	-15.7'	59.9'	63°00.0'	60°45.8'	57°18.6'	12°32.8'	43°25.1'	79°07.6'	79°28.7'	85°19.7'
1	61°15.3'	S 1°26.7'	10.7'	-15.7'	59.9'	62°36.9'	60°24.9'	56°42.5'	12°01.0'	44°01.2'	79°41.7'	80°04.9'	85°54.5'
2	75°44.9'	S 1°42.4'	10.6'	-15.7'	60.0'	62°14.0'	60°04.1'	56°06.3'	11°29.6'	44°37.3'	80°15.8'	80°41.2'	86°29.3'
3	90°14.5'	S 1°58.2'	10.6'	-15.7'	60.0'	61°51.1'	59°43.4'	55°30.0'	10°58.6'	45°13.4'	80°50.0'	81°17.6'	87°04.2'
4	104°44.1'	S 2°13.9'	10.5'	-15.7'	60.0'	61°28.3'	59°22.9'	54°53.8'	10°28.3'	45°49.7'	81°24.3'	81°54.0'	87°39.1'
5	119°13.6'	S 2°29.6'	10.5'	-15.7'	60.1'	61°05.6'	59°02.5'	54°17.5'	9°58.5'	46°25.9'	81°58.6'	82°30.4'	88°14.1'
6	133°43.1'	S 2°45.4'	10.4'	-15.7'	60.1'	60°43.0'	58°42.3'	53°41.1'		47°02.2'	82°32.9'	83°06.9'	88°49.0'
7	148°12.5'	S 3°01.1'	10.4'	-15.7'	60.1'	60°20.6'	58°22.2'	53°04.7'		47°38.5'	83°07.3'	83°43.4'	89°24.1'
8	162°41.8'	S 3°16.8'	10.3'	-15.7'	60.2'	59°58.2'	58°02.2'	52°28.3'		48°14.9'	83°41.8'	84°20.0'	89°59.1'
9	177°11.1'	S 3°32.6'	10.2'	-15.7'	60.2'	59°36.0'	57°42.4'	51°51.8'		48°51.4'	84°16.2'	84°56.6'	90°34.3'
10	191°40.4'	S 3°48.3'	10.2'	-15.7'	60.2'	59°13.9'	57°22.7'	51°15.3'		49°27.8'	84°50.7'	85°33.2'	91°09.4'
11	206°09.6'	S 4°04.1'	10.1'	-15.7'	60.2'	58°51.9'	57°03.2'	50°38.8'		50°04.4'	85°25.3'	86°09.9'	91°44.6'
12	220°38.7'	S 4°19.8'	10.1'	-15.7'	60.3'	58°30.0'	56°43.9'	50°02.2'		50°40.9'	85°59.9'	86°46.6'	92°19.8'
13	235°07.8'	S 4°35.5'	10.0'	-15.7'	60.3'	58°08.3'	56°24.7'	49°25.6'		51°17.5'	86°34.5'	87°23.4'	92°55.1'
14	249°36.8'	S 4°51.2'	10.0'	-15.7'	60.3'	57°46.7'	56°05.7'	48°49.0'		51°54.2'	87°09.2'	88°00.2'	93°30.4'
15	264°05.7'	S 5°06.9'	9.9'	-15.7'	60.4'	57°25.3'	55°46.9'	48°12.3'		52°30.9'	87°43.9'	88°37.0'	94°05.8'
16	278°34.6'	S 5°22.6'	9.8'	-15.7'	60.4'	57°04.0'	55°28.2'	47°35.6'		53°07.6'	88°18.7'	89°13.9'	94°41.1'
17	293°03.5'	S 5°38.3'	9.8'	-15.7'	60.4'	56°42.8'	55°09.8'	46°58.8'		53°44.4'	88°53.5'	89°50.8'	95°16.6'
18	307°32.2'	S 5°53.9'	9.7'	-15.6'	60.5'	56°21.8'	54°51.5'	46°22.1'		54°21.2'	89°28.3'	90°27.8'	95°52.0'
19	322°00.9'	S 6°09.6'	9.6'	-15.6'	60.5'	56°01.0'	54°33.4'	45°45.3'		54°58.0'	90°03.2'	91°04.8'	96°27.5'
20	336°29.6'	S 6°25.2'	9.6'	-15.6'	60.5'	55°40.3'	54°15.5'	45°08.4'		55°34.9'	90°38.1'	91°41.8'	97°03.0'
21	350°58.1'	S 6°40.8'	9.5'	-15.6'	60.5'	55°19.8'	53°57.9'	44°31.5'		56°11.8'	91°13.0'	92°18.8'	97°38.6'
22	5°26.6'	S 6°56.3'	9.4'	-15.5'	60.6'	54°59.5'	53°40.4'	43°54.6'		56°48.8'	91°48.0'	92°55.9'	98°14.2'
23	19°55.1'	S 7°11.9'	9.4'	-15.5'	60.6'	54°39.3'	53°23.2'	43°17.7'		57°25.8'	92°23.0'	93°33.1'	98°49.8'
Mer. pass.		21 h 37 m SD 16.3'		phase 83%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.0'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.4'	N 89°21.1'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	241°48.7'	180°47.7'	N 20°46.1'	164°34.6'	N 23°30.4'	268°28.6'	S 11°54.4'	285°38.3'	S 17°22.3'	131°27.9'	N 23°31.2'			
1	256°51.2'	195°47.6'	N 20°46.5'	179°33.7'	N 23°30.7'	283°30.9'	S 11°54.3'	300°40.8'	S 17°22.3'	146°28.7'	N 23°31.0'			
2	271°53.6'	210°47.6'	N 20°47.0'	194°32.8'	N 23°31.1'	298°33.1'	S 11°54.2'	315°43.3'	S 17°22.3'	161°29.5'	N 23°30.8'			
3	286°56.1'	225°47.5'	N 20°47.5'	209°32.0'	N 23°31.5'	313°35.4'	S 11°54.2'	330°45.7'	S 17°22.3'	176°30.3'	N 23°30.6'			
4	301°58.6'	240°47.5'	N 20°47.9'	224°31.1'	N 23°31.8'	328°37.7'	S 11°54.1'	345°48.2'	S 17°22.3'	191°31.1'	N 23°30.3'			
5	317°01.0'	255°47.4'	N 20°48.4'	239°30.3'	N 23°32.2'	343°39.9'	S 11°54.0'	0°50.7'	S 17°22.3'	206°31.9'	N 23°30.1'			
6	332°03.5'	270°47.3'	N 20°48.8'	254°29.4'	N 23°32.5'	358°42.2'	S 11°54.0'	15°53.1'	S 17°22.3'	221°32.7'	N 23°29.9'			
7	347°06.0'	285°47.3'	N 20°49.3'	269°28.6'	N 23°32.9'	13°44.4'	S 11°53.9'	30°55.6'	S 17°22.3'	236°33.6'	N 23°29.7'			
8	2°08.4'	300°47.2'	N 20°49.8'	284°27.7'	N 23°33.3'	28°46.7'	S 11°53.9'	45°58.1'	S 17°22.3'	251°34.4'	N 23°29.4'			
9	17°10.9'	315°47.2'	N 20°50.2'	299°26.9'	N 23°33.6'	43°49.0'	S 11°53.8'	61°00.5'	S 17°22.3'	266°35.2'	N 23°29.2'			
10	32°13.4'	330°47.1'	N 20°50.7'	314°26.0'	N 23°34.0'	58°51.2'	S 11°53.7'	76°03.0'	S 17°22.3'	281°36.0'	N 23°29.0'			
11	47°15.8'	345°47.1'	N 20°51.1'	329°25.2'	N 23°34.3'	73°53.5'	S 11°53.7'	91°05.5'	S 17°22.4'	296°36.8'	N 23°28.8'			
12	62°18.3'	0°47.0'	N 20°51.6'	344°24.3'	N 23°34.7'	88°55.7'	S 11°53.6'	106°07.9'	S 17°22.4'	311°37.6'	N 23°28.6'			
13	77°20.7'	15°46.9'	N 20°52.0'	359°23.4'	N 23°35.0'	103°58.0'	S 11°53.5'	121°10.4'	S 17°22.4'	326°38.4'	N 23°28.3'			
14	92°23.2'	30°46.9'	N 20°52.5'	14°22.6'	N 23°35.4'	119°00.3'	S 11°53.5'	136°12.9'	S 17°22.4'	341°39.2'	N 23°28.1'			
15	107°25.7'	45°46.8'	N 20°52.9'	29°21.7'	N 23°35.7'	134°02.5'	S 11°53.4'	151°15.3'	S 17°22.4'	356°40.1'	N 23°27.9'			
16	122°28.1'	60°46.8'	N 20°53.4'	44°20.9'	N 23°36.1'	149°04.8'	S 11°53.3'	166°17.8'	S 17°22.4'	11°40.9'	N 23°27.7'			
17	137°30.6'	75°46.7'	N 20°53.9'	59°20.0'	N 23°36.4'	164°07.1'	S 11°53.3'	181°20.3'	S 17°22.4'	26°41.7'	N 23°27.4'			
18	152°33.1'	90°46.6'	N 20°54.3'	74°19.2'	N 23°36.8'	179°09.3'	S 11°53.2'	196°22.7'	S 17°22.4'	41°42.5'	N 23°27.2'			
19	167°35.5'	105°46.6'	N 20°54.8'	89°18.3'	N 23°37.1'	194°11.6'	S 11°53.1'	211°25.2'	S 17°22.4'	56°43.3'	N 23°27.0'			
20	182°38.0'	120°46.5'	N 20°55.2'	104°17.4'	N 23°37.5'	209°13.9'	S 11°53.1'	226°27.7'	S 17°22.4'	71°44.1'	N 23°26.8'			
21	197°40.5'	135°46.5'	N 20°55.7'	119°16.6'	N 23°37.8'	224°16.1'	S 11°53.0'	241°30.1'	S 17°22.4'	86°44.9'	N 23°26.5'			
22	212°42.9'	150°46.4'	N 20°56.1'	134°15.7'	N 23°38.2'	239°18.4'	S 11°53.0'	256°32.6'	S 17°22.4'	101°45.7'	N 23°26.3'			
23	227°45.4'	165°46.3'	N 20°56.6'	149°14.9'	N 23°38.5'	254°20.6'	S 11°52.9'	271°35.1'	S 17°22.4'	116°46.6'	N 23°26.1'			
		SD 15.8'	d 0.5'		v -0.9' d 0.4'		v 2.3' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'			
Mer. pass.		11 h 56 m 53 s		13 h 2 m		6 h 5 m		4 h 57 m		15 h 13 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Vega	-Rigel Kent	-Hadar	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	34°23.4'	S 7°27.4'	9.3'	-15.5'	60.6'	80°56.3'	54°19.4'	53°06.1'	42°40.8'			58°02.9'	92°58.0'
1	48°51.7'	S 7°42.9'	9.2'	-15.5'	60.6'	80°41.1'	53°59.6'	52°49.3'	42°03.8'			58°39.9'	93°33.0'
2	63°19.9'	S 7°58.4'	9.1'	-15.4'	60.7'	80°26.0'	53°40.0'	52°32.8'	41°26.8'			59°17.0'	94°08.1'
3	77°48.1'	S 8°13.8'	9.1'	-15.4'	60.7'	80°11.0'	53°20.6'	52°16.4'	40°49.7'			59°54.2'	94°43.2'
4	92°16.1'	S 8°29.2'	9.0'	-15.4'	60.7'		53°01.5'	52°00.3'	40°12.7'			60°31.4'	95°18.4'
5	106°44.1'	S 8°44.5'	8.9'	-15.3'	60.7'		52°42.5'	51°44.5'	39°35.6'			61°08.6'	95°53.5'
6	121°12.0'	S 8°59.8'	8.8'	-15.3'	60.8'		52°23.7'	51°28.9'	38°58.5'			61°45.8'	96°28.7'
7	135°39.9'	S 9°15.1'	8.8'	-15.2'	60.8'		52°05.2'	51°13.5'	38°21.3'			62°23.1'	97°03.9'
8	150°07.6'	S 9°30.3'	8.7'	-15.2'	60.8'		51°46.9'		37°44.2'	10°24.7'		63°00.4'	97°39.1'
9	164°35.3'	S 9°45.5'	8.6'	-15.1'	60.8'		51°28.8'		37°07.0'	10°55.9'		63°37.8'	98°14.4'
10	179°02.9'	S 10°00.6'	8.5'	-15.1'	60.9'		51°11.0'		36°29.8'	11°27.8'		64°15.1'	98°49.7'
11	193°30.4'	S 10°15.7'	8.4'	-15.0'	60.9'		50°53.4'		35°52.6'	12°00.2'		64°52.5'	99°25.0'
12	207°57.9'	S 10°30.8'	8.4'	-15.0'	60.9'		50°36.1'		35°15.4'	12°33.1'	29°35.2'	65°30.0'	100°00.3'
13	222°25.2'	S 10°45.7'	8.3'	-14.9'	60.9'		50°19.0'		34°38.1'	13°06.5'	29°50.7'	66°07.4'	100°35.6'
14	236°52.5'	S 11°00.7'	8.2'	-14.9'	60.9'		50°02.1'		34°00.9'	13°40.2'	30°06.8'	66°44.9'	101°10.9'
15	251°19.7'	S 11°15.5'	8.1'	-14.8'	61.0'		49°45.6'		33°23.6'	14°14.3'	30°23.5'	67°22.4'	101°46.3'
16	265°46.8'	S 11°30.4'	8.0'	-14.7'	61.0'		49°29.3'		32°46.3'	14°48.7'	30°40.8'	67°60.0'	102°21.7'
17	280°13.8'	S 11°45.1'	7.9'	-14.7'	61.0'		49°13.3'		32°09.0'	15°23.4'	30°58.7'	68°37.6'	102°57.1'
18	294°40.7'	S 11°59.8'	7.8'	-14.6'	61.0'		48°57.5'		31°31.7'	15°58.3'	31°17.0'	69°15.2'	103°32.5'
19	309°07.6'	S 12°14.4'	7.8'	-14.6'	61.0'		48°42.1'		30°54.4'	16°33.4'	31°36.0'	69°52.8'	104°07.9'
20	323°34.4'	S 12°29.0'	7.7'	-14.5'	61.0'				30°17.1'	17°08.8'	31°55.4'	70°30.4'	104°43.3'
21	338°01.0'	S 12°43.4'	7.6'	-14.4'	61.1'				29°39.8'	17°44.3'	32°15.3'	71°08.1'	105°18.7'
22	352°27.6'	S 12°57.9'	7.5'	-14.3'	61.1'				29°02.5'	18°20.0'	32°35.7'	71°45.8'	105°54.1'
23	6°54.1'	S 13°12.2'	7.4'	-14.3'	61.1'				28°25.2'	18°55.8'	32°56.6'	72°23.5'	106°29.6'
Mer. pass.		22 h 31 m SD 16.5'		phase 91%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.7'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.2'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	242°47.9'	180°46.3'	N 20°57.0'	164°14.0'	N 23°38.8'	269°22.9'	S 11°52.8'	286°37.6'	S 17°22.4'	131°47.4'	N 23°25.9'			
1	257°50.3'	195°46.2'	N 20°57.5'	179°13.1'	N 23°39.2'	284°25.2'	S 11°52.8'	301°40.0'	S 17°22.5'	146°48.2'	N 23°25.6'			
2	272°52.8'	210°46.1'	N 20°57.9'	194°12.3'	N 23°39.5'	299°27.4'	S 11°52.7'	316°42.5'	S 17°22.5'	161°49.0'	N 23°25.4'			
3	287°55.2'	225°46.1'	N 20°58.3'	209°11.4'	N 23°39.9'	314°29.7'	S 11°52.6'	331°45.0'	S 17°22.5'	176°49.8'	N 23°25.2'			
4	302°57.7'	240°46.0'	N 20°58.8'	224°10.6'	N 23°40.2'	329°32.0'	S 11°52.6'	346°47.4'	S 17°22.5'	191°50.6'	N 23°25.0'			
5	318°00.2'	255°46.0'	N 20°59.2'	239°09.7'	N 23°40.5'	344°34.2'	S 11°52.5'	1°49.9'	S 17°22.5'	206°51.4'	N 23°24.7'			
6	333°02.6'	270°45.9'	N 20°59.7'	254°08.8'	N 23°40.9'	359°36.5'	S 11°52.5'	16°52.4'	S 17°22.5'	221°52.3'	N 23°24.5'			
7	348°05.1'	285°45.8'	N 21°00.1'	269°08.0'	N 23°41.2'	14°38.8'	S 11°52.4'	31°54.8'	S 17°22.5'	236°53.1'	N 23°24.3'			
8	3°07.6'	300°45.8'	N 21°00.6'	284°07.1'	N 23°41.5'	29°41.0'	S 11°52.3'	46°57.3'	S 17°22.5'	251°53.9'	N 23°24.0'			
9	18°10.0'	315°45.7'	N 21°01.0'	299°06.3'	N 23°41.8'	44°43.3'	S 11°52.3'	61°59.8'	S 17°22.5'	266°54.7'	N 23°23.8'			
10	33°12.5'	330°45.6'	N 21°01.5'	314°05.4'	N 23°42.2'	59°45.6'	S 11°52.2'	77°02.2'	S 17°22.5'	281°55.5'	N 23°23.6'			
11	48°15.0'	345°45.6'	N 21°01.9'	329°04.5'	N 23°42.5'	74°47.8'	S 11°52.2'	92°04.7'	S 17°22.5'	296°56.3'	N 23°23.4'			
12	63°17.4'	0°45.5'	N 21°02.3'	344°03.7'	N 23°42.8'	89°50.1'	S 11°52.1'	107°07.2'	S 17°22.5'	311°57.1'	N 23°23.1'			
13	78°19.9'	15°45.5'	N 21°02.8'	359°02.8'	N 23°43.2'	104°52.4'	S 11°52.0'	122°09.7'	S 17°22.5'	326°58.0'	N 23°22.9'			
14	93°22.4'	30°45.4'	N 21°03.2'	14°02.0'	N 23°43.5'	119°54.6'	S 11°52.0'	137°12.1'	S 17°22.6'	341°58.8'	N 23°22.7'			
15	108°24.8'	45°45.3'	N 21°03.6'	29°01.1'	N 23°43.8'	134°56.9'	S 11°51.9'	152°14.6'	S 17°22.6'	356°59.6'	N 23°22.4'			
16	123°27.3'	60°45.3'	N 21°04.1'	44°00.2'	N 23°44.1'	149°59.2'	S 11°51.8'	167°17.1'	S 17°22.6'	12°00.4'	N 23°22.2'			
17	138°29.7'	75°45.2'	N 21°04.5'	58°59.4'	N 23°44.4'	165°01.5'	S 11°51.8'	182°19.5'	S 17°22.6'	27°01.2'	N 23°22.0'			
18	153°32.2'	90°45.1'	N 21°05.0'	73°58.5'	N 23°44.8'	180°03.7'	S 11°51.7'	197°22.0'	S 17°22.6'	42°02.0'	N 23°21.7'			
19	168°34.7'	105°45.1'	N 21°05.4'	88°57.6'	N 23°45.1'	195°06.0'	S 11°51.7'	212°24.5'	S 17°22.6'	57°02.8'	N 23°21.5'			
20	183°37.1'	120°45.0'	N 21°05.8'	103°56.8'	N 23°45.4'	210°08.3'	S 11°51.6'	227°27.0'	S 17°22.6'	72°03.7'	N 23°21.3'			
21	198°39.6'	135°44.9'	N 21°06.3'	118°55.9'	N 23°45.7'	225°10.5'	S 11°51.5'	242°29.4'	S 17°22.6'	87°04.5'	N 23°21.0'			
22	213°42.1'	150°44.9'	N 21°06.7'	133°55.0'	N 23°46.0'	240°12.8'	S 11°51.5'	257°31.9'	S 17°22.6'	102°05.3'	N 23°20.8'			
23	228°44.5'	165°44.8'	N 21°07.1'	148°54.2'	N 23°46.3'	255°15.1'	S 11°51.4'	272°34.4'	S 17°22.6'	117°06.1'	N 23°20.6'			
		SD 15.8'	d 0.4'		v -0.9' d 0.3'		v 2.3' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'			
Mer. pass.		11 h 56 m 59 s		13 h 4 m		6 h 2 m		4 h 53 m		15 h 12 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	21°20.5'	S 13°26.4'	7.3'	-14.2'	61.1'	98°53.1'	90°23.7'	79°09.0'	27°47.8'	19°31.8'	33°17.9'	73°01.2'	105°33.2'
1	35°46.8'	S 13°40.6'	7.2'	-14.1'	61.1'	98°38.1'	89°45.9'	78°37.6'	27°10.5'	20°07.9'	33°39.7'	73°39.0'	105°53.4'
2	50°13.0'	S 13°54.7'	7.1'	-14.0'	61.1'	98°23.0'	89°08.1'	78°06.2'	26°33.2'	20°44.2'	34°01.9'	74°16.8'	106°13.5'
3	64°39.2'	S 14°08.7'	7.0'	-13.9'	61.1'	98°07.9'	88°30.3'	77°34.9'	25°55.9'	21°20.5'	34°24.5'	74°54.6'	106°33.5'
4	79°05.2'	S 14°22.7'	6.9'	-13.8'	61.2'	97°52.7'	87°52.4'	77°03.5'	25°18.6'	21°57.0'	34°47.5'	75°32.4'	106°53.4'
5	93°31.2'	S 14°36.5'	6.9'	-13.8'	61.2'	97°37.5'	87°14.5'	76°32.2'	24°41.3'	22°33.5'	35°10.9'	76°10.2'	107°13.3'
6	107°57.0'	S 14°50.3'	6.8'	-13.7'	61.2'	97°22.2'	86°36.6'	76°00.9'	24°04.1'	23°10.1'	35°34.7'	76°48.0'	107°33.0'
7	122°22.8'	S 15°04.0'	6.7'	-13.6'	61.2'	97°06.8'	85°58.7'	75°29.6'	23°26.9'	23°46.8'	35°58.8'	77°25.9'	107°52.7'
8	136°48.5'	S 15°17.5'	6.6'	-13.5'	61.2'	96°51.4'	85°20.8'	74°58.3'	22°49.7'	24°23.6'	36°23.3'	78°03.8'	108°12.3'
9	151°14.1'	S 15°31.0'	6.5'	-13.4'	61.2'	96°36.0'	84°42.9'	74°27.1'	22°12.5'	25°00.5'	36°48.2'	78°41.7'	108°31.7'
10	165°39.5'	S 15°44.4'	6.4'	-13.3'	61.2'	96°20.5'	84°04.9'	73°55.9'	21°35.3'	25°37.4'	37°13.3'	79°19.6'	108°51.1'
11	180°04.9'	S 15°57.7'	6.3'	-13.2'	61.2'	96°05.0'	83°26.9'	73°24.7'	20°58.2'	26°14.4'	37°38.8'	79°57.5'	109°10.4'
12	194°30.2'	S 16°10.8'	6.2'	-13.1'	61.2'	95°49.4'	82°49.0'	72°53.6'	20°21.2'	26°51.5'	38°04.6'	80°35.4'	109°29.6'
13	208°55.4'	S 16°23.9'	6.1'	-13.0'	61.2'	95°33.8'	82°11.0'	72°22.4'	19°44.2'	27°28.6'	38°30.7'	81°13.4'	109°48.7'
14	223°20.6'	S 16°36.9'	6.0'	-12.9'	61.3'	95°18.1'	81°33.0'	71°51.4'	19°07.2'	28°05.7'	38°57.0'	81°51.3'	110°07.6'
15	237°45.6'	S 16°49.8'	5.9'	-12.8'	61.3'	95°02.4'	80°55.0'	71°20.3'	18°30.3'	28°42.9'	39°23.7'	82°29.3'	110°26.5'
16	252°10.5'	S 17°02.5'	5.8'	-12.6'	61.3'	94°46.7'	80°17.0'	70°49.3'	17°53.5'	29°20.2'	39°50.6'	83°07.3'	110°45.2'
17	266°35.3'	S 17°15.1'	5.7'	-12.5'	61.3'	94°30.9'	79°38.9'	70°18.4'	17°16.8'	29°57.4'	40°17.7'	83°45.3'	111°03.9'
18	281°00.1'	S 17°27.7'	5.6'	-12.4'	61.3'	94°15.1'	79°00.9'	69°47.5'	16°40.1'	30°34.8'	40°45.2'	84°23.2'	111°22.4'
19	295°24.7'	S 17°40.1'	5.6'	-12.3'	61.3'	93°59.3'	78°22.9'	69°16.6'	16°03.6'	31°12.1'	41°12.8'	85°01.2'	111°40.8'
20	309°49.3'	S 17°52.4'	5.5'	-12.2'	61.3'	93°43.5'	77°44.8'	68°45.8'	15°27.1'	31°49.5'	41°40.7'	85°39.2'	111°59.0'
21	324°13.8'	S 18°04.5'	5.4'	-12.0'	61.3'	93°27.6'	77°06.8'	68°15.0'	14°50.9'	32°26.9'	42°08.8'	86°17.2'	112°17.1'
22	338°38.1'	S 18°16.6'	5.3'	-11.9'	61.3'	93°11.7'	76°28.7'	67°44.3'	14°14.7'	33°04.4'	42°37.1'	86°55.3'	112°35.1'
23	353°02.4'	S 18°28.5'	5.2'	-11.8'	61.3'	92°55.8'	75°50.7'	67°13.7'	13°38.8'	33°41.9'	43°05.6'	87°33.3'	112°53.0'
Mer. pass.		23 h 29 m SD 16.7'		phase 97%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°51.0'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	243°47.0'	180°44.7'	N 21°07.6'	163°53.3'	N 23°46.6'	270°17.4'	S 11°51.4'	287°36.9'	S 17°22.6'	132°06.9'	N 23°20.4'			
1	258°49.5'	195°44.7'	N 21°08.0'	178°52.5'	N 23°46.9'	285°19.6'	S 11°51.3'	302°39.3'	S 17°22.6'	147°07.7'	N 23°20.1'			
2	273°51.9'	210°44.6'	N 21°08.4'	193°51.6'	N 23°47.3'	300°21.9'	S 11°51.2'	317°41.8'	S 17°22.7'	162°08.6'	N 23°19.9'			
3	288°54.4'	225°44.5'	N 21°08.9'	208°50.7'	N 23°47.6'	315°24.2'	S 11°51.2'	332°44.3'	S 17°22.7'	177°09.4'	N 23°19.6'			
4	303°56.8'	240°44.5'	N 21°09.3'	223°49.9'	N 23°47.9'	330°26.4'	S 11°51.1'	347°46.7'	S 17°22.7'	192°10.2'	N 23°19.4'			
5	318°59.3'	255°44.4'	N 21°09.7'	238°49.0'	N 23°48.2'	345°28.7'	S 11°51.1'	2°49.2'	S 17°22.7'	207°11.0'	N 23°19.2'			
6	334°01.8'	270°44.3'	N 21°10.2'	253°48.1'	N 23°48.5'	0°31.0'	S 11°51.0'	17°51.7'	S 17°22.7'	222°11.8'	N 23°18.9'			
7	349°04.2'	285°44.3'	N 21°10.6'	268°47.3'	N 23°48.8'	15°33.3'	S 11°50.9'	32°54.2'	S 17°22.7'	237°12.6'	N 23°18.7'			
8	4°06.7'	300°44.2'	N 21°11.0'	283°46.4'	N 23°49.1'	30°35.5'	S 11°50.9'	47°56.6'	S 17°22.7'	252°13.4'	N 23°18.5'			
9	19°09.2'	315°44.1'	N 21°11.4'	298°45.5'	N 23°49.4'	45°37.8'	S 11°50.8'	62°59.1'	S 17°22.7'	267°14.3'	N 23°18.2'			
10	34°11.6'	330°44.1'	N 21°11.9'	313°44.7'	N 23°49.7'	60°40.1'	S 11°50.8'	78°01.6'	S 17°22.7'	282°15.1'	N 23°18.0'			
11	49°14.1'	345°44.0'	N 21°12.3'	328°43.8'	N 23°50.0'	75°42.4'	S 11°50.7'	93°04.1'	S 17°22.7'	297°15.9'	N 23°17.8'			
12	64°16.6'	0°43.9'	N 21°12.7'	343°42.9'	N 23°50.3'	90°44.6'	S 11°50.6'	108°06.5'	S 17°22.7'	312°16.7'	N 23°17.5'			
13	79°19.0'	15°43.9'	N 21°13.1'	358°42.1'	N 23°50.6'	105°46.9'	S 11°50.6'	123°09.0'	S 17°22.8'	327°17.5'	N 23°17.3'			
14	94°21.5'	30°43.8'	N 21°13.6'	13°41.2'	N 23°50.9'	120°49.2'	S 11°50.5'	138°11.5'	S 17°22.8'	342°18.3'	N 23°17.1'			
15	109°24.0'	45°43.7'	N 21°14.0'	28°40.3'	N 23°51.2'	135°51.5'	S 11°50.5'	153°14.0'	S 17°22.8'	357°19.2'	N 23°16.8'			
16	124°26.4'	60°43.6'	N 21°14.4'	43°39.5'	N 23°51.5'	150°53.7'	S 11°50.4'	168°16.4'	S 17°22.8'	12°20.0'	N 23°16.6'			
17	139°28.9'	75°43.6'	N 21°14.8'	58°38.6'	N 23°51.7'	165°56.0'	S 11°50.3'	183°18.9'	S 17°22.8'	27°20.8'	N 23°16.3'			
18	154°31.3'	90°43.5'	N 21°15.3'	73°37.7'	N 23°52.0'	180°58.3'	S 11°50.3'	198°21.4'	S 17°22.8'	42°21.6'	N 23°16.1'			
19	169°33.8'	105°43.4'	N 21°15.7'	88°36.9'	N 23°52.3'	196°00.6'	S 11°50.2'	213°23.9'	S 17°22.8'	57°22.4'	N 23°15.9'			
20	184°36.3'	120°43.4'	N 21°16.1'	103°36.0'	N 23°52.6'	211°02.8'	S 11°50.2'	228°26.3'	S 17°22.8'	72°23.2'	N 23°15.6'			
21	199°38.7'	135°43.3'	N 21°16.5'	118°35.1'	N 23°52.9'	226°05.1'	S 11°50.1'	243°28.8'	S 17°22.8'	87°24.1'	N 23°15.4'			
22	214°41.2'	150°43.2'	N 21°16.9'	133°34.2'	N 23°53.2'	241°07.4'	S 11°50.1'	258°31.3'	S 17°22.8'	102°24.9'	N 23°15.2'			
23	229°43.7'	165°43.1'	N 21°17.4'	148°33.4'	N 23°53.5'	256°09.7'	S 11°50.0'	273°33.8'	S 17°22.9'	117°25.7'	N 23°14.9'			
		SD 15.8' d 0.4'		v -0.9' d 0.3'		v 2.3' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'				
Mer. pass.		11 h 57 m 5 s		13 h 5 m		5 h 58 m		4 h 49 m		15 h 11 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	7°26.6'	S 18°40.3'	5.1'	-11.7'	61.3'	92°39.9'	75°12.6'	66°43.1'	13°03.0'	34°19.4'	43°34.4'	88°11.3'	113°10.7'
1	21°50.7'	S 18°52.0'	5.0'	-11.5'	61.3'	92°23.9'	74°34.6'	66°12.6'	12°27.5'	34°56.9'	44°03.3'	88°49.3'	113°28.3'
2	36°14.7'	S 19°03.5'	4.9'	-11.4'	61.3'	92°08.0'	73°56.5'	65°42.1'	11°52.2'	35°34.4'	44°32.4'	89°27.3'	113°45.7'
3	50°38.6'	S 19°14.9'	4.8'	-11.3'	61.3'	91°52.0'	73°18.4'	65°11.8'	11°17.3'	36°12.0'	45°01.7'	90°05.4'	114°03.0'
4	65°02.5'	S 19°26.2'	4.7'	-11.1'	61.3'	91°36.0'	72°40.4'	64°41.4'	10°42.7'	36°49.6'	45°31.1'	90°43.4'	114°20.1'
5	79°26.2'	S 19°37.3'	4.7'	-11.0'	61.3'	91°20.0'	72°02.3'	64°11.2'	10°08.5'	37°27.2'	46°00.8'	91°21.4'	114°37.1'
6	93°49.9'	S 19°48.3'	4.6'	-10.8'	61.3'	91°04.0'	71°24.3'	63°41.0'	9°34.9'	38°04.8'	46°30.6'	91°59.4'	114°53.9'
7	108°13.4'	S 19°59.1'	4.5'	-10.7'	61.3'	90°48.0'	70°46.2'	63°11.0'	9°01.8'	38°42.4'	47°00.5'	92°37.4'	115°10.6'
8	122°36.9'	S 20°09.8'	4.4'	-10.6'	61.3'	90°32.0'	70°08.2'	62°41.0'		39°20.0'	47°30.6'	93°15.4'	115°27.1'
9	137°00.3'	S 20°20.4'	4.3'	-10.4'	61.3'	90°16.0'	69°30.1'	62°11.1'		39°57.7'	48°00.8'	93°53.4'	115°43.4'
10	151°23.7'	S 20°30.8'	4.2'	-10.3'	61.3'	89°60.0'	68°52.1'	61°41.3'		40°35.3'	48°31.2'	94°31.4'	115°59.6'
11	165°46.9'	S 20°41.1'	4.2'	-10.1'	61.3'	89°43.9'	68°14.1'	61°11.5'		41°13.0'	49°01.7'	95°09.4'	116°15.6'
12	180°10.1'	S 20°51.2'	4.1'	-10.0'	61.3'	89°27.9'	67°36.1'	60°41.9'		41°50.6'	49°32.3'	95°47.4'	116°31.4'
13	194°33.1'	S 21°01.2'	4.0'	-9.8'	61.3'	89°11.9'	66°58.1'	60°12.4'		42°28.3'	50°03.0'	96°25.4'	116°47.0'
14	208°56.1'	S 21°11.0'	3.9'	-9.7'	61.3'	88°55.9'	66°20.1'	59°43.0'		43°05.9'	50°33.9'	97°03.4'	117°02.5'
15	223°19.1'	S 21°20.6'	3.8'	-9.5'	61.2'	88°40.0'	65°42.1'	59°13.7'		43°43.6'	51°04.8'	97°41.3'	117°17.7'
16	237°41.9'	S 21°30.1'	3.8'	-9.3'	61.2'	88°24.0'	65°04.1'	58°44.5'		44°21.3'	51°35.9'	98°19.3'	
17	252°04.7'	S 21°39.5'	3.7'	-9.2'	61.2'	88°08.0'	64°26.1'	58°15.4'		44°58.9'	52°07.1'	98°57.2'	
18	266°27.4'	S 21°48.7'	3.6'	-9.0'	61.2'	87°52.1'	63°48.1'	57°46.4'		45°36.6'	52°38.4'	99°35.2'	
19	280°50.0'	S 21°57.7'	3.6'	-8.9'	61.2'	87°36.2'	63°10.2'	57°17.5'		46°14.3'	53°09.7'	100°13.1'	
20	295°12.5'	S 22°06.5'	3.5'	-8.7'	61.2'	87°20.3'	62°32.3'	56°48.8'		46°51.9'	53°41.2'	100°51.0'	
21	309°35.0'	S 22°15.2'	3.4'	-8.5'	61.2'	87°04.4'	61°54.3'	56°20.2'		47°29.6'	54°12.7'	101°28.9'	
22	323°57.4'	S 22°23.8'	3.4'	-8.4'	61.2'	86°48.5'	61°16.4'	55°51.8'		48°07.2'	54°44.4'	102°06.8'	
23	338°19.8'	S 22°32.1'	3.3'	-8.2'	61.2'	86°32.7'	60°38.6'	55°23.4'		48°44.9'	55°16.1'	102°44.6'	
Mer. pass.		0 h 30 m SD 16.7' phase 100%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.8'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°50.7'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.7'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

Thursday 27 May 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	244°46.1'		180°43.1'	N 21°17.8'	163°32.5'	N 23°53.7'	271°12.0'	S 11°49.9'	288°36.3'	S 17°22.9'	132°26.5'	N 23°14.7'
1	259°48.6'		195°43.0'	N 21°18.2'	178°31.6'	N 23°54.0'	286°14.2'	S 11°49.9'	303°38.7'	S 17°22.9'	147°27.3'	N 23°14.4'
2	274°51.1'		210°42.9'	N 21°18.6'	193°30.8'	N 23°54.3'	301°16.5'	S 11°49.8'	318°41.2'	S 17°22.9'	162°28.1'	N 23°14.2'
3	289°53.5'		225°42.9'	N 21°19.0'	208°29.9'	N 23°54.6'	316°18.8'	S 11°49.8'	333°43.7'	S 17°22.9'	177°29.0'	N 23°14.0'
4	304°56.0'		240°42.8'	N 21°19.4'	223°29.0'	N 23°54.9'	331°21.1'	S 11°49.7'	348°46.2'	S 17°22.9'	192°29.8'	N 23°13.7'
5	319°58.5'		255°42.7'	N 21°19.8'	238°28.2'	N 23°55.1'	346°23.4'	S 11°49.7'	3°48.6'	S 17°22.9'	207°30.6'	N 23°13.5'
6	335°00.9'		270°42.6'	N 21°20.3'	253°27.3'	N 23°55.4'	1°25.6'	S 11°49.6'	18°51.1'	S 17°22.9'	222°31.4'	N 23°13.2'
7	350°03.4'		285°42.6'	N 21°20.7'	268°26.4'	N 23°55.7'	16°27.9'	S 11°49.5'	33°53.6'	S 17°22.9'	237°32.2'	N 23°13.0'
8	5°05.8'		300°42.5'	N 21°21.1'	283°25.5'	N 23°56.0'	31°30.2'	S 11°49.5'	48°56.1'	S 17°22.9'	252°33.1'	N 23°12.8'
9	20°08.3'		315°42.4'	N 21°21.5'	298°24.7'	N 23°56.2'	46°32.5'	S 11°49.4'	63°58.5'	S 17°23.0'	267°33.9'	N 23°12.5'
10	35°10.8'		330°42.4'	N 21°21.9'	313°23.8'	N 23°56.5'	61°34.8'	S 11°49.4'	79°01.0'	S 17°23.0'	282°34.7'	N 23°12.3'
11	50°13.2'		345°42.3'	N 21°22.3'	328°22.9'	N 23°56.8'	76°37.0'	S 11°49.3'	94°03.5'	S 17°23.0'	297°35.5'	N 23°12.0'
12	65°15.7'		0°42.2'	N 21°22.7'	343°22.1'	N 23°57.0'	91°39.3'	S 11°49.3'	109°06.0'	S 17°23.0'	312°36.3'	N 23°11.8'
13	80°18.2'		15°42.1'	N 21°23.1'	358°21.2'	N 23°57.3'	106°41.6'	S 11°49.2'	124°08.5'	S 17°23.0'	327°37.1'	N 23°11.5'
14	95°20.6'		30°42.1'	N 21°23.6'	13°20.3'	N 23°57.6'	121°43.9'	S 11°49.1'	139°10.9'	S 17°23.0'	342°38.0'	N 23°11.3'
15	110°23.1'		45°42.0'	N 21°24.0'	28°19.4'	N 23°57.8'	136°46.2'	S 11°49.1'	154°13.4'	S 17°23.0'	357°38.8'	N 23°11.1'
16	125°25.6'		60°41.9'	N 21°24.4'	43°18.6'	N 23°58.1'	151°48.5'	S 11°49.0'	169°15.9'	S 17°23.0'	12°39.6'	N 23°10.8'
17	140°28.0'		75°41.8'	N 21°24.8'	58°17.7'	N 23°58.4'	166°50.7'	S 11°49.0'	184°18.4'	S 17°23.0'	27°40.4'	N 23°10.6'
18	155°30.5'		90°41.8'	N 21°25.2'	73°16.8'	N 23°58.6'	181°53.0'	S 11°48.9'	199°20.9'	S 17°23.0'	42°41.2'	N 23°10.3'
19	170°33.0'		105°41.7'	N 21°25.6'	88°15.9'	N 23°58.9'	196°55.3'	S 11°48.9'	214°23.3'	S 17°23.1'	57°42.1'	N 23°10.1'
20	185°35.4'		120°41.6'	N 21°26.0'	103°15.1'	N 23°59.1'	211°57.6'	S 11°48.8'	229°25.8'	S 17°23.1'	72°42.9'	N 23°09.8'
21	200°37.9'		135°41.5'	N 21°26.4'	118°14.2'	N 23°59.4'	226°59.9'	S 11°48.8'	244°28.3'	S 17°23.1'	87°43.7'	N 23°09.6'
22	215°40.3'		150°41.5'	N 21°26.8'	133°13.3'	N 23°59.7'	242°02.2'	S 11°48.7'	259°30.8'	S 17°23.1'	102°44.5'	N 23°09.3'
23	230°42.8'		165°41.4'	N 21°27.2'	148°12.4'	N 23°59.9'	257°04.4'	S 11°48.6'	274°33.3'	S 17°23.1'	117°45.3'	N 23°09.1'
			SD 15.8'	d 0.4'	v -0.9'	d 0.3'	v 2.3'	d 0.1'	v 2.5'	d -0.0'	v 0.8'	d -0.2'
Mer. pass.			11 h 57 m 12 s		13 h 7 m		5 h 54 m		4 h 45 m		15 h 9 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Saturn	-Altair	+Antares	+Hadar	+Spica	+Arcturus
0	352°42.1'	S 22°40.3'	3.2'	-8.0'	61.2'	81°12.2'	77°43.9'	60°00.7'	54°55.3'			49°22.5'	55°47.8'
1	7°04.3'	S 22°48.3'	3.2'	-7.8'	61.1'	80°35.7'	77°06.2'	59°22.8'	54°27.2'			50°00.1'	56°19.7'
2	21°26.5'	S 22°56.2'	3.1'	-7.7'	61.1'	79°59.2'	76°28.6'	58°45.0'	53°59.3'			50°37.7'	56°51.6'
3	35°48.6'	S 23°03.8'	3.1'	-7.5'	61.1'	79°22.8'	75°51.0'	58°07.2'	53°31.6'			51°15.3'	57°23.6'
4	50°10.7'	S 23°11.3'	3.0'	-7.3'	61.1'	78°46.4'	75°13.4'	57°29.4'	53°04.0'			51°52.9'	57°55.6'
5	64°32.7'	S 23°18.7'	2.9'	-7.1'	61.1'	78°10.0'	74°35.8'	56°51.6'	52°36.6'			52°30.5'	58°27.7'
6	78°54.6'	S 23°25.8'	2.9'	-7.0'	61.1'	77°33.6'	73°58.2'	56°13.9'	52°09.4'			53°08.0'	58°59.9'
7	93°16.5'	S 23°32.8'	2.9'	-6.8'	61.1'	76°57.3'	73°20.7'	55°36.2'	51°42.3'	8°45.0'		53°45.6'	59°32.1'
8	107°38.4'	S 23°39.6'	2.8'	-6.6'	61.0'	76°21.0'	72°43.2'	54°58.5'	51°15.4'	9°17.4'		54°23.1'	60°04.4'
9	122°00.2'	S 23°46.2'	2.8'	-6.4'	61.0'	75°44.7'	72°05.7'	54°20.8'	50°48.7'	9°50.5'		55°00.6'	60°36.7'
10	136°21.9'	S 23°52.6'	2.7'	-6.2'	61.0'	75°08.5'	71°28.2'	53°43.1'	50°22.1'	10°24.1'		55°38.1'	61°09.0'
11	150°43.6'	S 23°58.8'	2.7'	-6.1'	61.0'	74°32.3'	70°50.7'	53°05.5'	49°55.8'	10°58.1'		56°15.5'	61°41.4'
12	165°05.3'	S 24°04.9'	2.6'	-5.9'	61.0'	73°56.1'	70°13.3'	52°27.9'	49°29.7'	11°32.5'		56°53.0'	62°13.8'
13	179°27.0'	S 24°10.8'	2.6'	-5.7'	60.9'	73°20.0'	69°35.9'	51°50.3'	49°03.7'	12°07.2'		57°30.4'	62°46.3'
14	193°48.6'	S 24°16.5'	2.6'	-5.5'	60.9'	72°43.8'	68°58.5'	51°12.8'	48°38.0'	12°42.1'		58°07.8'	63°18.8'
15	208°10.2'	S 24°22.0'	2.6'	-5.3'	60.9'	72°07.8'	68°21.2'	50°35.2'	48°12.5'	13°17.3'		58°45.2'	63°51.3'
16	222°31.7'	S 24°27.3'	2.5'	-5.1'	60.9'	71°31.7'	67°43.9'	49°57.8'	47°47.2'	13°52.6'		59°22.6'	64°23.9'
17	236°53.2'	S 24°32.4'	2.5'	-4.9'	60.9'	70°55.7'	67°06.6'	49°20.3'	47°22.1'	14°28.1'		59°59.9'	64°56.4'
18	251°14.7'	S 24°37.3'	2.5'	-4.8'	60.8'	70°19.8'	66°29.3'	48°42.9'	46°57.3'	15°03.8'		60°37.2'	65°29.0'
19	265°36.2'	S 24°42.1'	2.5'	-4.6'	60.8'	69°43.8'	65°52.1'	48°05.5'	46°32.7'	15°39.6'	51°00.3'	61°14.5'	66°01.7'
20	279°57.7'	S 24°46.7'	2.4'	-4.4'	60.8'	69°08.0'	65°14.9'	47°28.1'	46°08.3'	16°15.4'	51°15.4'	61°51.8'	66°34.3'
21	294°19.1'	S 24°51.0'	2.4'	-4.2'	60.8'	68°32.1'	64°37.7'	46°50.8'	45°44.2'	16°51.4'	51°30.8'	62°29.0'	67°07.0'
22	308°40.6'	S 24°55.2'	2.4'	-4.0'	60.7'	67°56.3'	64°00.6'	46°13.5'	45°20.3'	17°27.4'	51°46.4'	63°06.2'	67°39.6'
23	323°02.0'	S 24°59.2'	2.4'	-3.8'	60.7'	67°20.6'	63°23.5'	45°36.2'	44°56.7'	18°03.5'	52°02.3'	63°43.4'	68°12.3'
Mer. pass.			0 h 30 m SD 16.7'	phase 100%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.8'
Vega	+0.0	80°34.9'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°50.3'	N 89°21.0'
Rigil Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.2'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	245°45.3'	180°41.3'	N 21°27.6'	163°11.6'	N 24°00.2'	272°06.7'	S 11°48.6'	289°35.7'	S 17°23.1'	132°46.2'	N 23°08.9'			
1	260°47.7'	195°41.2'	N 21°28.0'	178°10.7'	N 24°00.4'	287°09.0'	S 11°48.5'	304°38.2'	S 17°23.1'	147°47.0'	N 23°08.6'			
2	275°50.2'	210°41.2'	N 21°28.4'	193°09.8'	N 24°00.7'	302°11.3'	S 11°48.5'	319°40.7'	S 17°23.1'	162°47.8'	N 23°08.4'			
3	290°52.7'	225°41.1'	N 21°28.8'	208°08.9'	N 24°00.9'	317°13.6'	S 11°48.4'	334°43.2'	S 17°23.1'	177°48.6'	N 23°08.1'			
4	305°55.1'	240°41.0'	N 21°29.2'	223°08.1'	N 24°01.2'	332°15.9'	S 11°48.4'	349°45.7'	S 17°23.2'	192°49.4'	N 23°07.9'			
5	320°57.6'	255°40.9'	N 21°29.6'	238°07.2'	N 24°01.4'	347°18.2'	S 11°48.3'	4°48.2'	S 17°23.2'	207°50.2'	N 23°07.6'			
6	336°00.1'	270°40.8'	N 21°30.0'	253°06.3'	N 24°01.7'	2°20.4'	S 11°48.3'	19°50.6'	S 17°23.2'	222°51.1'	N 23°07.4'			
7	351°02.5'	285°40.8'	N 21°30.4'	268°05.4'	N 24°01.9'	17°22.7'	S 11°48.2'	34°53.1'	S 17°23.2'	237°51.9'	N 23°07.1'			
8	6°05.0'	300°40.7'	N 21°30.8'	283°04.6'	N 24°02.1'	32°25.0'	S 11°48.1'	49°55.6'	S 17°23.2'	252°52.7'	N 23°06.9'			
9	21°07.5'	315°40.6'	N 21°31.2'	298°03.7'	N 24°02.4'	47°27.3'	S 11°48.1'	64°58.1'	S 17°23.2'	267°53.5'	N 23°06.6'			
10	36°09.9'	330°40.5'	N 21°31.6'	313°02.8'	N 24°02.6'	62°29.6'	S 11°48.0'	80°00.6'	S 17°23.2'	282°54.3'	N 23°06.4'			
11	51°12.4'	345°40.5'	N 21°32.0'	328°01.9'	N 24°02.9'	77°31.9'	S 11°48.0'	95°03.0'	S 17°23.2'	297°55.2'	N 23°06.1'			
12	66°14.8'	0°40.4'	N 21°32.4'	343°01.1'	N 24°03.1'	92°34.2'	S 11°47.9'	110°05.5'	S 17°23.2'	312°56.0'	N 23°05.9'			
13	81°17.3'	15°40.3'	N 21°32.8'	358°00.2'	N 24°03.3'	107°36.5'	S 11°47.9'	125°08.0'	S 17°23.3'	327°56.8'	N 23°05.6'			
14	96°19.8'	30°40.2'	N 21°33.2'	12°59.3'	N 24°03.6'	122°38.7'	S 11°47.8'	140°10.5'	S 17°23.3'	342°57.6'	N 23°05.4'			
15	111°22.2'	45°40.1'	N 21°33.6'	27°58.4'	N 24°03.8'	137°41.0'	S 11°47.8'	155°13.0'	S 17°23.3'	357°58.4'	N 23°05.1'			
16	126°24.7'	60°40.1'	N 21°34.0'	42°57.6'	N 24°04.0'	152°43.3'	S 11°47.7'	170°15.5'	S 17°23.3'	12°59.3'	N 23°04.9'			
17	141°27.2'	75°40.0'	N 21°34.3'	57°56.7'	N 24°04.3'	167°45.6'	S 11°47.7'	185°17.9'	S 17°23.3'	28°00.1'	N 23°04.6'			
18	156°29.6'	90°39.9'	N 21°34.7'	72°55.8'	N 24°04.5'	182°47.9'	S 11°47.6'	200°20.4'	S 17°23.3'	43°00.9'	N 23°04.4'			
19	171°32.1'	105°39.8'	N 21°35.1'	87°54.9'	N 24°04.7'	197°50.2'	S 11°47.6'	215°22.9'	S 17°23.3'	58°01.7'	N 23°04.1'			
20	186°34.6'	120°39.7'	N 21°35.5'	102°54.0'	N 24°05.0'	212°52.5'	S 11°47.5'	230°25.4'	S 17°23.3'	73°02.6'	N 23°03.9'			
21	201°37.0'	135°39.7'	N 21°35.9'	117°53.2'	N 24°05.2'	227°54.8'	S 11°47.5'	245°27.9'	S 17°23.4'	88°03.4'	N 23°03.6'			
22	216°39.5'	150°39.6'	N 21°36.3'	132°52.3'	N 24°05.4'	242°57.1'	S 11°47.4'	260°30.4'	S 17°23.4'	103°04.2'	N 23°03.4'			
23	231°42.0'	165°39.5'	N 21°36.7'	147°51.4'	N 24°05.6'	257°59.4'	S 11°47.3'	275°32.9'	S 17°23.4'	118°05.0'	N 23°03.1'			
		SD 15.8' d 0.4'		v -0.9' d 0.2'		v 2.3' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.2'				
Mer. pass.		11 h 57 m 19 s		13 h 8 m		5 h 51 m		4 h 41 m		15 h 8 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Acrux
0	337°23.4'	S 25°03.0'	2.4'	-3.6'	60.7'	66°44.9'	62°46.4'	44°59.0'	44°33.4'	18°39.7'		52°18.5'	63°57.8'
1	351°44.8'	S 25°06.6'	2.4'	-3.4'	60.7'	66°09.2'	62°09.3'	44°21.8'	44°10.3'	19°15.9'	48°38.0'	52°34.9'	64°13.1'
2	6°06.2'	S 25°10.1'	2.4'	-3.2'	60.7'	65°33.6'	61°32.3'	43°44.6'	43°47.5'	19°52.1'	48°53.2'	52°51.5'	64°28.6'
3	20°27.6'	S 25°13.3'	2.4'	-3.0'	60.6'	64°58.0'	60°55.4'	43°07.5'	43°25.0'	20°28.4'	49°08.7'	53°08.4'	64°44.2'
4	34°49.0'	S 25°16.3'	2.4'	-2.8'	60.6'	64°22.5'	60°18.4'	42°30.4'	43°02.8'	21°04.7'	49°24.4'	53°25.4'	64°59.9'
5	49°10.4'	S 25°19.2'	2.4'	-2.7'	60.6'	63°47.0'	59°41.5'	41°53.4'	42°40.9'	21°41.0'	49°40.4'	53°42.7'	65°15.8'
6	63°31.8'	S 25°21.8'	2.4'	-2.5'	60.5'	63°11.6'	59°04.6'	41°16.4'	42°19.4'	22°17.3'	49°56.7'	54°00.3'	65°31.8'
7	77°53.3'	S 25°24.3'	2.4'	-2.3'	60.5'	62°36.3'	58°27.8'	40°39.4'	41°58.1'	22°53.6'	50°13.2'	54°18.0'	65°47.9'
8	92°14.7'	S 25°26.5'	2.5'	-2.1'	60.5'	62°01.0'	57°51.0'	40°02.5'	41°37.1'	23°30.0'	50°30.0'	54°35.9'	66°04.2'
9	106°36.1'	S 25°28.6'	2.5'	-1.9'	60.5'	61°25.7'	57°14.3'	39°25.6'	41°16.5'	24°06.3'	50°47.0'	54°54.0'	66°20.6'
10	120°57.6'	S 25°30.5'	2.5'	-1.7'	60.4'	60°50.5'	56°37.6'	38°48.8'	40°56.2'	24°42.7'	51°04.3'	55°12.4'	66°37.1'
11	135°19.1'	S 25°32.2'	2.5'	-1.5'	60.4'	60°15.4'	56°00.9'	38°12.0'	40°36.3'	25°19.0'	51°21.7'	55°30.9'	66°53.8'
12	149°40.6'	S 25°33.7'	2.5'	-1.3'	60.4'	59°40.3'	55°24.2'	37°35.3'	40°16.7'	25°55.3'	51°39.5'	55°49.6'	67°10.6'
13	164°02.2'	S 25°35.0'	2.6'	-1.1'	60.3'	59°05.3'	54°47.7'	36°58.6'	39°57.5'	26°31.6'	51°57.4'	56°08.4'	67°27.4'
14	178°23.8'	S 25°36.1'	2.6'	-0.9'	60.3'	58°30.3'	54°11.1'	36°21.9'	39°38.6'	27°07.9'	52°15.6'	56°27.5'	67°44.4'
15	192°45.4'	S 25°37.1'	2.6'	-0.7'	60.3'	57°55.4'	53°34.6'	35°45.3'	39°20.1'	27°44.2'	52°33.9'	56°46.7'	68°01.5'
16	207°07.0'	S 25°37.8'	2.7'	-0.5'	60.3'	57°20.6'	52°58.1'	35°08.2'	39°02.0'	28°20.5'	52°52.5'	57°06.1'	68°18.7'
17	221°28.7'	S 25°38.3'	2.7'	-0.4'	60.2'	56°45.9'	52°21.7'	34°32.2'	38°44.3'	28°56.8'	53°11.3'	57°25.7'	68°36.0'
18	235°50.4'	S 25°38.7'	2.8'	-0.2'	60.2'	56°11.2'	51°45.3'	33°55.8'	38°27.0'	29°33.0'	53°30.3'	57°45.4'	68°53.5'
19	250°12.2'	S 25°38.9'	2.8'	0.0'	60.2'	55°36.5'	51°09.0'	33°19.4'	38°10.1'	30°09.2'	53°49.4'	58°05.2'	69°11.0'
20	264°34.0'	S 25°38.9'	2.9'	0.2'	60.1'	55°02.0'	50°32.7'	32°43.0'	37°53.6'	30°45.4'	54°08.8'	58°25.2'	69°28.6'
21	278°55.8'	S 25°38.7'	2.9'	0.4'	60.1'	54°27.5'	49°56.4'	32°06.7'	37°37.5'	31°21.5'	54°28.3'	58°45.4'	69°46.3'
22	293°17.7'	S 25°38.3'	3.0'	0.6'	60.1'	53°53.0'	49°20.2'	31°30.4'	37°21.9'	31°57.7'	54°48.0'	59°05.7'	70°04.1'
23	307°39.7'	S 25°37.7'	3.0'	0.8'	60.0'	53°18.7'	48°44.0'	30°54.2'		32°33.8'	55°07.9'	59°26.1'	70°21.9'
Mer. pass.		1 h 35 m SD 16.6' phase 96%											

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.6'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.7'
Vega	+0.0	80°34.9'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°50.0'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.4'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°23.0'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	246°44.4'	180°39.4'	N 21°37.1'	162°50.5'	N 24°05.9'	273°01.7'	S 11°47.3'	290°35.3'	S 17°23.4'	133°05.8'	N 23°02.9'			
1	261°46.9'	195°39.3'	N 21°37.5'	177°49.7'	N 24°06.1'	288°03.9'	S 11°47.2'	305°37.8'	S 17°23.4'	148°06.7'	N 23°02.6'			
2	276°49.3'	210°39.3'	N 21°37.8'	192°48.8'	N 24°06.3'	303°06.2'	S 11°47.2'	320°40.3'	S 17°23.4'	163°07.5'	N 23°02.4'			
3	291°51.8'	225°39.2'	N 21°38.2'	207°47.9'	N 24°06.5'	318°08.5'	S 11°47.1'	335°42.8'	S 17°23.4'	178°08.3'	N 23°02.1'			
4	306°54.3'	240°39.1'	N 21°38.6'	222°47.0'	N 24°06.8'	333°10.8'	S 11°47.1'	350°45.3'	S 17°23.4'	193°09.1'	N 23°01.8'			
5	321°56.7'	255°39.0'	N 21°39.0'	237°46.1'	N 24°07.0'	348°13.1'	S 11°47.0'	5°47.8'	S 17°23.5'	208°09.9'	N 23°01.6'			
6	336°59.2'	270°38.9'	N 21°39.4'	252°45.3'	N 24°07.2'	3°15.4'	S 11°47.0'	20°50.2'	S 17°23.5'	223°10.8'	N 23°01.3'			
7	352°01.7'	285°38.8'	N 21°39.8'	267°44.4'	N 24°07.4'	18°17.7'	S 11°46.9'	35°52.7'	S 17°23.5'	238°11.6'	N 23°01.1'			
8	7°04.1'	300°38.8'	N 21°40.1'	282°43.5'	N 24°07.6'	33°20.0'	S 11°46.9'	50°55.2'	S 17°23.5'	253°12.4'	N 23°00.8'			
9	22°06.6'	315°38.7'	N 21°40.5'	297°42.6'	N 24°07.8'	48°22.3'	S 11°46.8'	65°57.7'	S 17°23.5'	268°13.2'	N 23°00.6'			
10	37°09.1'	330°38.6'	N 21°40.9'	312°41.7'	N 24°08.0'	63°24.6'	S 11°46.8'	81°00.2'	S 17°23.5'	283°14.0'	N 23°00.3'			
11	52°11.5'	345°38.5'	N 21°41.3'	327°40.9'	N 24°08.3'	78°26.9'	S 11°46.7'	96°02.7'	S 17°23.5'	298°14.9'	N 23°00.1'			
12	67°14.0'	0°38.4'	N 21°41.7'	342°40.0'	N 24°08.5'	93°29.2'	S 11°46.7'	111°05.2'	S 17°23.5'	313°15.7'	N 22°59.8'			
13	82°16.5'	15°38.3'	N 21°42.0'	357°39.1'	N 24°08.7'	108°31.5'	S 11°46.6'	126°07.7'	S 17°23.6'	328°16.5'	N 22°59.6'			
14	97°18.9'	30°38.3'	N 21°42.4'	12°38.2'	N 24°08.9'	123°33.8'	S 11°46.6'	141°10.1'	S 17°23.6'	343°17.3'	N 22°59.3'			
15	112°21.4'	45°38.2'	N 21°42.8'	27°37.3'	N 24°09.1'	138°36.1'	S 11°46.5'	156°12.6'	S 17°23.6'	358°18.2'	N 22°59.0'			
16	127°23.8'	60°38.1'	N 21°43.2'	42°36.5'	N 24°09.3'	153°38.4'	S 11°46.5'	171°15.1'	S 17°23.6'	13°19.0'	N 22°58.8'			
17	142°26.3'	75°38.0'	N 21°43.5'	57°35.6'	N 24°09.5'	168°40.7'	S 11°46.4'	186°17.6'	S 17°23.6'	28°19.8'	N 22°58.5'			
18	157°28.8'	90°37.9'	N 21°43.9'	72°34.7'	N 24°09.7'	183°43.0'	S 11°46.4'	201°20.1'	S 17°23.6'	43°20.6'	N 22°58.3'			
19	172°31.2'	105°37.8'	N 21°44.3'	87°33.8'	N 24°09.9'	198°45.3'	S 11°46.3'	216°22.6'	S 17°23.6'	58°21.5'	N 22°58.0'			
20	187°33.7'	120°37.8'	N 21°44.7'	102°32.9'	N 24°10.1'	213°47.6'	S 11°46.3'	231°25.1'	S 17°23.6'	73°22.3'	N 22°57.8'			
21	202°36.2'	135°37.7'	N 21°45.0'	117°32.0'	N 24°10.3'	228°49.9'	S 11°46.2'	246°27.6'	S 17°23.7'	88°23.1'	N 22°57.5'			
22	217°38.6'	150°37.6'	N 21°45.4'	132°31.2'	N 24°10.5'	243°52.2'	S 11°46.2'	261°30.0'	S 17°23.7'	103°23.9'	N 22°57.2'			
23	232°41.1'	165°37.5'	N 21°45.8'	147°30.3'	N 24°10.7'	258°54.5'	S 11°46.1'	276°32.5'	S 17°23.7'	118°24.7'	N 22°57.0'			
		SD 15.8' d 0.4'		v -0.9' d 0.2'		v 2.3' d 0.1'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 57 m 27 s		13 h 9 m		5 h 47 m		4 h 37 m		15 h 7 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Achernar	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	322°01.7'	S 25°36.9'	3.1'	0.9'	60.0'	73°48.3'	52°44.4'	48°07.9'	30°18.1'	33°09.9'	55°27.9'	59°46.7'	70°39.9'
1	336°23.8'	S 25°36.0'	3.1'	1.1'	60.0'	73°28.8'	52°10.2'	47°31.9'	29°42.0'	33°45.9'	55°48.1'	60°07.4'	70°57.9'
2	350°45.9'	S 25°34.8'	3.2'	1.3'	59.9'	73°09.3'	51°36.1'	46°55.8'	29°06.0'	34°21.9'	56°08.5'	60°28.2'	71°16.0'
3	5°08.1'	S 25°33.5'	3.3'	1.5'	59.9'	72°50.0'	51°02.1'	46°19.9'	28°30.0'	34°57.9'	56°29.0'	60°49.2'	71°34.2'
4	19°30.4'	S 25°32.0'	3.3'	1.7'	59.9'	72°30.8'	50°28.1'	45°43.9'	27°54.1'	35°33.9'	56°49.6'	61°10.2'	71°52.5'
5	33°52.7'	S 25°30.4'	3.4'	1.9'	59.8'	72°11.7'	49°54.2'	45°08.1'	27°18.2'	36°09.8'	57°10.4'	61°31.4'	72°10.8'
6	48°15.1'	S 25°28.5'	3.5'	2.0'	59.8'	71°52.7'	49°20.4'	44°32.2'	26°42.4'	36°45.6'	57°31.4'	61°52.7'	72°29.2'
7	62°37.6'	S 25°26.5'	3.5'	2.2'	59.7'	71°33.8'	48°46.7'	43°56.4'	26°06.7'	37°21.5'	57°52.4'	62°14.0'	72°47.7'
8	77°00.1'	S 25°24.3'	3.6'	2.4'	59.7'	71°15.1'	48°13.1'	43°20.7'	25°31.0'	37°57.3'	58°13.6'	62°35.5'	73°06.2'
9	91°22.7'	S 25°21.9'	3.7'	2.6'	59.7'	70°56.4'	47°39.5'	42°45.0'	24°55.4'	38°33.1'	58°35.0'	62°57.1'	73°24.8'
10	105°45.4'	S 25°19.3'	3.8'	2.7'	59.6'	70°37.9'	47°06.1'	42°09.4'	24°19.9'	39°08.8'	58°56.4'	63°18.8'	73°43.5'
11	120°08.2'	S 25°16.6'	3.9'	2.9'	59.6'	70°19.5'	46°32.7'	41°33.8'	23°44.4'	39°44.5'	59°18.0'	63°40.6'	74°02.2'
12	134°31.1'	S 25°13.7'	3.9'	3.1'	59.6'	70°01.3'	45°59.5'	40°58.3'	23°09.0'	40°20.2'	59°39.7'	64°02.5'	74°20.9'
13	148°54.0'	S 25°10.6'	4.0'	3.2'	59.5'	69°43.1'	45°26.3'	40°22.8'	22°33.7'	40°55.8'	60°01.5'	64°24.4'	74°39.8'
14	163°17.0'	S 25°07.4'	4.1'	3.4'	59.5'	69°25.1'	44°53.2'	39°47.4'	21°58.5'	41°31.4'	60°23.4'	64°46.4'	74°58.6'
15	177°40.1'	S 25°03.9'	4.2'	3.6'	59.5'	69°07.2'	44°20.2'	39°12.0'	21°23.3'	42°06.9'	60°45.4'	65°08.6'	75°17.5'
16	192°03.3'	S 25°00.4'	4.3'	3.8'	59.4'	68°49.4'	43°47.4'	38°36.7'	20°48.2'	42°42.4'	61°07.5'	65°30.7'	75°36.5'
17	206°26.6'	S 24°56.6'	4.4'	3.9'	59.4'	68°31.8'	43°14.6'	38°01.5'	20°13.2'	43°17.8'	61°29.7'	65°53.0'	75°55.5'
18	220°50.0'	S 24°52.7'	4.5'	4.1'	59.3'	68°14.3'	42°42.0'	37°26.2'	19°38.3'	43°53.2'	61°52.0'	66°15.3'	76°14.5'
19	235°13.5'	S 24°48.6'	4.6'	4.2'	59.3'	67°56.9'	42°09.4'	36°51.1'	19°03.5'	44°28.6'	62°14.3'	66°37.7'	76°33.6'
20	249°37.1'	S 24°44.4'	4.7'	4.4'	59.3'	67°39.7'	41°37.0'	36°16.0'	18°28.8'	45°03.9'	62°36.8'	67°00.2'	76°52.7'
21	264°00.8'	S 24°40.0'	4.8'	4.6'	59.2'	67°22.6'	41°04.7'	35°41.0'	17°54.2'	45°39.2'	62°59.4'	67°22.8'	77°11.9'
22	278°24.6'	S 24°35.4'	4.9'	4.7'	59.2'	67°05.7'	40°32.4'	35°06.0'	17°19.7'	46°14.5'	63°22.0'	67°45.3'	77°31.1'
23	292°48.4'	S 24°30.7'	5.0'	4.9'	59.2'	66°48.9'	40°00.4'	34°31.0'	16°45.3'	46°49.6'	63°44.7'	68°08.0'	77°50.3'
Mer. pass.		2 h 39 m SD 16.4'		phase 91%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.9'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°02.9'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°49.7'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	247°43.6'	180°37.4' N 21°46.2'	162°29.4' N 24°10.9'	273°56.8' S 11°46.1'	291°35.0' S 17°23.7'	133°25.6' N 22°56.7'						
1	262°46.0'	195°37.3' N 21°46.5'	177°28.5' N 24°11.1'	288°59.1' S 11°46.0'	306°37.5' S 17°23.7'	148°26.4' N 22°56.5'						
2	277°48.5'	210°37.2' N 21°46.9'	192°27.6' N 24°11.3'	304°01.4' S 11°46.0'	321°40.0' S 17°23.7'	163°27.2' N 22°56.2'						
3	292°51.0'	225°37.2' N 21°47.3'	207°26.8' N 24°11.5'	319°03.7' S 11°45.9'	336°42.5' S 17°23.7'	178°28.0' N 22°55.9'						
4	307°53.4'	240°37.1' N 21°47.6'	222°25.9' N 24°11.6'	334°06.0' S 11°45.9'	351°45.0' S 17°23.7'	193°28.9' N 22°55.7'						
5	322°55.9'	255°37.0' N 21°48.0'	237°25.0' N 24°11.8'	349°08.3' S 11°45.8'	6°47.5' S 17°23.8'	208°29.7' N 22°55.4'						
6	337°58.3'	270°36.9' N 21°48.4'	252°24.1' N 24°12.0'	4°10.6' S 11°45.8'	21°50.0' S 17°23.8'	223°30.5' N 22°55.2'						
7	353°00.8'	285°36.8' N 21°48.7'	267°23.2' N 24°12.2'	19°12.9' S 11°45.7'	36°52.5' S 17°23.8'	238°31.3' N 22°54.9'						
8	8°03.3'	300°36.7' N 21°49.1'	282°22.3' N 24°12.4'	34°15.2' S 11°45.7'	51°54.9' S 17°23.8'	253°32.2' N 22°54.6'						
9	23°05.7'	315°36.6' N 21°49.5'	297°21.5' N 24°12.6'	49°17.5' S 11°45.6'	66°57.4' S 17°23.8'	268°33.0' N 22°54.4'						
10	38°08.2'	330°36.5' N 21°49.8'	312°20.6' N 24°12.8'	64°19.8' S 11°45.6'	81°59.9' S 17°23.8'	283°33.8' N 22°54.1'						
11	53°10.7'	345°36.5' N 21°50.2'	327°19.7' N 24°12.9'	79°22.1' S 11°45.5'	97°02.4' S 17°23.8'	298°34.6' N 22°53.8'						
12	68°13.1'	360°36.4' N 21°50.6'	342°18.8' N 24°13.1'	94°24.4' S 11°45.5'	112°04.9' S 17°23.9'	313°35.4' N 22°53.6'						
13	83°15.6'	15°36.3' N 21°50.9'	357°17.9' N 24°13.3'	109°26.7' S 11°45.4'	127°07.4' S 17°23.9'	328°36.3' N 22°53.3'						
14	98°18.1'	30°36.2' N 21°51.3'	12°17.0' N 24°13.5'	124°29.0' S 11°45.4'	142°09.9' S 17°23.9'	343°37.1' N 22°53.1'						
15	113°20.5'	45°36.1' N 21°51.6'	27°16.2' N 24°13.7'	139°31.3' S 11°45.3'	157°12.4' S 17°23.9'	358°37.9' N 22°52.8'						
16	128°23.0'	60°36.0' N 21°52.0'	42°15.3' N 24°13.8'	154°33.6' S 11°45.3'	172°14.9' S 17°23.9'	13°38.7' N 22°52.5'						
17	143°25.4'	75°35.9' N 21°52.4'	57°14.4' N 24°14.0'	169°35.9' S 11°45.2'	187°17.4' S 17°23.9'	28°39.6' N 22°52.3'						
18	158°27.9'	90°35.8' N 21°52.7'	72°13.5' N 24°14.2'	184°38.2' S 11°45.2'	202°19.9' S 17°23.9'	43°40.4' N 22°52.0'						
19	173°30.4'	105°35.7' N 21°53.1'	87°12.6' N 24°14.3'	199°40.5' S 11°45.1'	217°22.3' S 17°24.0'	58°41.2' N 22°51.7'						
20	188°32.8'	120°35.7' N 21°53.4'	102°11.7' N 24°14.5'	214°42.8' S 11°45.1'	232°24.8' S 17°24.0'	73°42.0' N 22°51.5'						
21	203°35.3'	135°35.6' N 21°53.8'	117°10.9' N 24°14.7'	229°45.1' S 11°45.0'	247°27.3' S 17°24.0'	88°42.9' N 22°51.2'						
22	218°37.8'	150°35.5' N 21°54.2'	132°10.0' N 24°14.9'	244°47.4' S 11°45.0'	262°29.8' S 17°24.0'	103°43.7' N 22°50.9'						
23	233°40.2'	165°35.4' N 21°54.5'	147°09.1' N 24°15.0'	259°49.7' S 11°44.9'	277°32.3' S 17°24.0'	118°44.5' N 22°50.7'						
		SD 15.8' d 0.4'	v -0.9' d 0.2'	v 2.3' d 0.0'	v 2.5' d -0.0'	v 0.8' d -0.3'						
Mer. pass.		11 h 57 m 35 s	13 h 11 m	5 h 43 m	4 h 33 m	15 h 5 m						

h	Moon				Lunar distance									
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acruz	
0	307°12.4'	S 24°25.8'	5.1'	5.0'	59.1'			39°28.4'	33°56.2'	16°11.1'	47°24.8'	64°07.5'	68°30.7'	78°09.5'
1	321°36.5'	S 24°20.8'	5.2'	5.2'	59.1'			38°56.6'	33°21.4'	15°36.9'	47°59.9'	64°30.4'	68°53.5'	78°28.8'
2	336°00.7'	S 24°15.6'	5.3'	5.3'	59.0'			38°24.9'	32°46.6'	15°02.9'	48°35.0'	64°53.3'	69°16.3'	78°48.1'
3	350°25.0'	S 24°10.2'	5.4'	5.5'	59.0'			37°53.3'	32°11.9'	14°29.0'	49°10.0'	65°16.3'	69°39.1'	79°07.4'
4	4°49.4'	S 24°04.7'	5.5'	5.6'	59.0'			37°21.8'	31°37.3'	13°55.3'	49°44.9'	65°39.3'	70°02.0'	79°26.7'
5	19°13.9'	S 23°59.1'	5.6'	5.8'	58.9'			36°50.5'	31°02.7'	13°21.8'	50°19.9'	66°02.4'	70°25.0'	79°46.1'
6	33°38.5'	S 23°53.3'	5.7'	5.9'	58.9'			36°19.4'	30°28.2'	12°48.5'	50°54.7'	66°25.6'	70°47.9'	80°05.5'
7	48°03.3'	S 23°47.4'	5.8'	6.1'	58.8'			35°48.4'	29°53.7'	12°15.4'	51°29.6'	66°48.8'	71°11.0'	80°24.9'
8	62°28.1'	S 23°41.3'	6.0'	6.2'	58.8'			35°17.5'	29°19.3'	11°42.5'	52°04.4'	67°12.1'	71°34.0'	80°44.3'
9	76°53.1'	S 23°35.1'	6.1'	6.4'	58.8'			34°46.8'	28°45.0'	11°09.8'	52°39.1'	67°35.4'	71°57.1'	81°03.7'
10	91°18.1'	S 23°28.7'	6.2'	6.5'	58.7'			34°16.3'	28°10.8'	10°37.4'	53°13.8'	67°58.8'	72°20.2'	81°23.1'
11	105°43.3'	S 23°22.3'	6.3'	6.6'	58.7'			33°45.9'	27°36.6'	10°05.4'	53°48.4'	68°22.2'	72°43.4'	81°42.6'
12	120°08.6'	S 23°15.6'	6.4'	6.8'	58.6'			33°15.7'	27°02.4'	9°33.7'	54°23.0'	68°45.7'	73°06.6'	82°02.0'
13	134°34.0'	S 23°08.8'	6.5'	6.9'	58.6'			32°45.7'	26°28.4'	9°02.5'	54°57.6'	69°09.2'	73°29.8'	82°21.5'
14	148°59.6'	S 23°01.9'	6.6'	7.0'	58.6'			32°15.8'	25°54.4'	8°31.8'	55°32.1'	69°32.7'	73°53.0'	82°40.9'
15	163°25.2'	S 22°54.9'	6.8'	7.2'	58.5'			31°46.2'	25°20.5'	8°01.6'	56°06.5'	69°56.3'	74°16.3'	83°00.4'
16	177°51.0'	S 22°47.7'	6.9'	7.3'	58.5'			31°16.7'	24°46.6'		56°41.0'	70°19.9'	74°39.5'	83°19.9'
17	192°16.8'	S 22°40.4'	7.0'	7.4'	58.4'			30°47.5'	24°12.8'		57°15.3'	70°43.6'	75°02.8'	83°39.3'
18	206°42.8'	S 22°33.0'	7.1'	7.5'	58.4'			30°18.4'	23°39.1'		57°49.6'	71°07.2'	75°26.1'	83°58.8'
19	221°09.0'	S 22°25.5'	7.2'	7.7'	58.4'			29°49.6'	23°05.5'		58°23.9'	71°30.9'	75°49.5'	84°18.2'
20	235°35.2'	S 22°17.8'	7.4'	7.8'	58.3'			29°20.9'	22°32.0'		58°58.1'	71°54.7'	76°12.8'	84°37.7'
21	250°01.5'	S 22°10.0'	7.5'	7.9'	58.3'	119°44.7'		28°52.6'	21°58.5'		59°32.3'	72°18.4'	76°36.2'	84°57.1'
22	264°28.0'	S 22°02.1'	7.6'	8.0'	58.2'	119°12.8'		28°24.4'	21°25.1'		60°06.4'	72°42.2'	76°59.5'	85°16.6'
23	278°54.6'	S 21°54.1'	7.7'	8.2'	58.2'	118°40.9'		27°56.5'	20°51.8'		60°40.5'	73°06.0'	77°22.9'	85°36.0'
Mer. pass.														

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acruz	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°49.4'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				

Monday 31 May 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	248°42.7'	180°35.3'	N 21°54.9'	162°08.2'	N 24°15.2'	274°52.0'	S 11°44.9'	292°34.8'	S 17°24.0'	133°45.3'	N 22°50.4'			
1	263°45.2'	195°35.2'	N 21°55.2'	177°07.3'	N 24°15.3'	289°54.3'	S 11°44.8'	307°37.3'	S 17°24.0'	148°46.2'	N 22°50.2'			
2	278°47.6'	210°35.1'	N 21°55.6'	192°06.4'	N 24°15.5'	304°56.6'	S 11°44.8'	322°39.8'	S 17°24.1'	163°47.0'	N 22°49.9'			
3	293°50.1'	225°35.0'	N 21°55.9'	207°05.5'	N 24°15.7'	319°58.9'	S 11°44.8'	337°42.3'	S 17°24.1'	178°47.8'	N 22°49.6'			
4	308°52.6'	240°34.9'	N 21°56.3'	222°04.7'	N 24°15.8'	335°01.2'	S 11°44.7'	352°44.8'	S 17°24.1'	193°48.6'	N 22°49.4'			
5	323°55.0'	255°34.8'	N 21°56.6'	237°03.8'	N 24°16.0'	350°03.6'	S 11°44.7'	7°47.3'	S 17°24.1'	208°49.5'	N 22°49.1'			
6	338°57.5'	270°34.8'	N 21°57.0'	252°02.9'	N 24°16.1'	5°05.9'	S 11°44.6'	22°49.8'	S 17°24.1'	223°50.3'	N 22°48.8'			
7	353°59.9'	285°34.7'	N 21°57.3'	267°02.0'	N 24°16.3'	20°08.2'	S 11°44.6'	37°52.3'	S 17°24.1'	238°51.1'	N 22°48.6'			
8	9°02.4'	300°34.6'	N 21°57.7'	282°01.1'	N 24°16.5'	35°10.5'	S 11°44.5'	52°54.8'	S 17°24.1'	253°51.9'	N 22°48.3'			
9	24°04.9'	315°34.5'	N 21°58.0'	297°00.2'	N 24°16.6'	50°12.8'	S 11°44.5'	67°57.3'	S 17°24.2'	268°52.8'	N 22°48.0'			
10	39°07.3'	330°34.4'	N 21°58.4'	311°59.3'	N 24°16.8'	65°15.1'	S 11°44.4'	82°59.7'	S 17°24.2'	283°53.6'	N 22°47.7'			
11	54°09.8'	345°34.3'	N 21°58.7'	326°58.5'	N 24°16.9'	80°17.4'	S 11°44.4'	98°02.2'	S 17°24.2'	298°54.4'	N 22°47.5'			
12	69°12.3'	0°34.2'	N 21°59.1'	341°57.6'	N 24°17.1'	95°19.7'	S 11°44.3'	113°04.7'	S 17°24.2'	313°55.2'	N 22°47.2'			
13	84°14.7'	15°34.1'	N 21°59.4'	356°56.7'	N 24°17.2'	110°22.0'	S 11°44.3'	128°07.2'	S 17°24.2'	328°56.1'	N 22°46.9'			
14	99°17.2'	30°34.0'	N 21°59.8'	11°55.8'	N 24°17.4'	125°24.3'	S 11°44.2'	143°09.7'	S 17°24.2'	343°56.9'	N 22°46.7'			
15	114°19.7'	45°33.9'	N 22°00.1'	26°54.9'	N 24°17.5'	140°26.6'	S 11°44.2'	158°12.2'	S 17°24.3'	358°57.7'	N 22°46.4'			
16	129°22.1'	60°33.8'	N 22°00.5'	41°54.0'	N 24°17.7'	155°29.0'	S 11°44.2'	173°14.7'	S 17°24.3'	13°58.6'	N 22°46.1'			
17	144°24.6'	75°33.7'	N 22°00.8'	56°53.1'	N 24°17.8'	170°31.3'	S 11°44.1'	188°17.2'	S 17°24.3'	28°59.4'	N 22°45.9'			
18	159°27.1'	90°33.6'	N 22°01.2'	71°52.3'	N 24°17.9'	185°33.6'	S 11°44.1'	203°19.7'	S 17°24.3'	44°00.2'	N 22°45.6'			
19	174°29.5'	105°33.5'	N 22°01.5'	86°51.4'	N 24°18.1'	200°35.9'	S 11°44.0'	218°22.2'	S 17°24.3'	59°01.0'	N 22°45.3'			
20	189°32.0'	120°33.5'	N 22°01.8'	101°50.5'	N 24°18.2'	215°38.2'	S 11°44.0'	233°24.7'	S 17°24.3'	74°01.9'	N 22°45.0'			
21	204°34.4'	135°33.4'	N 22°02.2'	116°49.6'	N 24°18.4'	230°40.5'	S 11°43.9'	248°27.2'	S 17°24.3'	89°02.7'	N 22°44.8'			
22	219°36.9'	150°33.3'	N 22°02.5'	131°48.7'	N 24°18.5'	245°42.8'	S 11°43.9'	263°29.7'	S 17°24.4'	104°03.5'	N 22°44.5'			
23	234°39.4'	165°33.2'	N 22°02.9'	146°47.8'	N 24°18.6'	260°45.1'	S 11°43.8'	278°32.2'	S 17°24.4'	119°04.3'	N 22°44.2'			
		SD 15.8' d 0.3'		v -0.9' d 0.1'		v 2.3' d 0.0'		v 2.5' d -0.0'		v 0.8' d -0.3'				
Mer. pass.		11 h 57 m 44 s		13 h 12 m		5 h 40 m		4 h 29 m		15 h 4 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	293°21.3'	S 21°45.9'	7.8'	8.3'	58.2'	118°09.1'	27°28.9'	20°18.6'			61°14.5'	73°29.8'	77°46.3'
1	307°48.1'	S 21°37.6'	7.9'	8.4'	58.1'	117°37.4'	27°01.5'	19°45.5'			61°48.5'	73°53.6'	78°09.6'
2	322°15.1'	S 21°29.3'	8.1'	8.5'	58.1'	117°05.7'	26°34.4'	19°12.4'			62°22.4'	74°17.5'	78°33.0'
3	336°42.2'	S 21°20.8'	8.2'	8.6'	58.0'	116°34.1'	26°07.6'	18°39.5'			62°56.3'	74°41.3'	78°56.4'
4	351°09.4'	S 21°12.2'	8.3'	8.7'	58.0'	116°02.5'	25°41.1'	18°06.7'			63°30.2'	75°05.2'	79°19.8'
5	5°36.7'	S 21°03.4'	8.4'	8.8'	58.0'	115°30.9'	25°14.9'	17°34.0'			64°04.0'	75°29.1'	79°43.2'
6	20°04.1'	S 20°54.6'	8.5'	8.9'	57.9'	114°59.4'	24°49.1'	17°01.4'			64°37.7'	75°53.0'	80°06.6'
7	34°31.6'	S 20°45.7'	8.7'	9.0'	57.9'	114°28.0'	24°23.6'	16°28.9'			65°11.4'	76°16.9'	80°30.0'
8	48°59.3'	S 20°36.7'	8.8'	9.1'	57.8'	113°56.6'	23°58.4'	15°56.5'			65°45.1'	76°40.8'	80°53.3'
9	63°27.1'	S 20°27.5'	8.9'	9.2'	57.8'	113°25.2'	23°33.7'	15°24.3'			66°18.7'	77°04.7'	81°16.7'
10	77°55.0'	S 20°18.3'	9.0'	9.3'	57.8'	112°53.9'	23°09.3'	14°52.2'			66°52.2'	77°28.6'	81°40.1'
11	92°23.0'	S 20°08.9'	9.1'	9.4'	57.7'	112°22.7'	22°45.3'	14°20.3'			67°25.7'	77°52.5'	82°03.4'
12	106°51.1'	S 19°59.5'	9.3'	9.5'	57.7'	111°51.5'	22°21.7'	13°48.5'			67°59.2'	78°16.5'	82°26.8'
13	121°19.4'	S 19°50.0'	9.4'	9.6'	57.6'	111°20.3'	21°58.6'	13°17.0'			68°32.6'	78°40.4'	82°50.1'
14	135°47.8'	S 19°40.4'	9.5'	9.7'	57.6'	110°49.2'	21°36.0'	12°45.6'	7°20.5'	38°04.7'	69°06.0'	79°04.3'	83°13.4'
15	150°16.3'	S 19°30.6'	9.6'	9.8'	57.6'	110°18.1'	21°13.8'	12°14.4'	7°48.8'	38°20.0'	69°39.3'	79°28.2'	83°36.7'
16	164°44.9'	S 19°20.8'	9.7'	9.9'	57.5'	109°47.1'	20°52.2'	11°43.4'	8°17.6'	38°35.6'	70°12.6'	79°52.1'	84°00.0'
17	179°13.6'	S 19°10.9'	9.8'	10.0'	57.5'	109°16.2'	20°31.1'	11°12.8'	8°47.0'	38°51.5'	70°45.8'	80°16.0'	84°23.3'
18	193°42.4'	S 19°00.9'	10.0'	10.1'	57.4'	108°45.2'	20°10.5'	10°42.4'	9°16.7'	39°07.6'	71°19.0'	80°39.9'	84°46.6'
19	208°11.4'	S 18°50.9'	10.1'	10.2'	57.4'	108°14.4'	19°50.5'	10°12.3'	9°46.8'	39°24.1'	71°52.2'	81°03.8'	85°09.8'
20	222°40.4'	S 18°40.7'	10.2'	10.2'	57.4'	107°43.5'	19°31.2'	9°42.6'	10°17.2'	39°40.8'	72°25.3'	81°27.7'	85°33.1'
21	237°09.6'	S 18°30.5'	10.3'	10.3'	57.3'	107°12.7'	19°12.4'	9°13.3'	10°47.8'	39°57.8'	72°58.3'	81°51.6'	85°56.3'
22	251°38.9'	S 18°20.1'	10.4'	10.4'	57.3'	106°42.0'	18°54.3'	8°44.5'	11°18.7'	40°15.0'	73°31.3'	82°15.4'	86°19.5'
23	266°08.3'	S 18°09.7'	10.5'	10.5'	57.3'	106°11.3'	18°36.9'	8°16.3'	11°49.6'	40°32.5'	74°04.3'	82°39.3'	86°42.6'
Mer. pass.		4 h 37 m SD 15.9'		phase 74%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°17.8'	S 29°30.5'	Spica	+1.0	158°25.2'	S 11°16.4'	Betelgeuse	+0.5	270°55.6'	N 7°24.6'
Deneb	+1.2	49°27.5'	N 45°21.1'	Acrux	+0.8	173°03.0'	S 63°13.2'	Capella	+0.1	280°26.7'	N 46°01.1'
Altair	+0.8	62°02.6'	N 8°55.4'	Regulus	+1.4	207°37.7'	N 11°51.8'	Rigel	+0.2	281°07.1'	S 8°10.7'
Vega	+0.0	80°34.8'	N 38°48.1'	Pollux	+1.2	243°21.2'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.1'	S 26°28.7'	Procyon	+0.4	244°54.2'	N 5°10.2'	Polaris	+2.0	315°49.2'	N 89°21.0'
Rigel Kent	-0.0	139°43.7'	S 60°55.5'	Adhara	+1.5	255°08.5'	S 29°00.2'	Achernar	+0.5	335°22.9'	S 57°07.6'
Arcturus	-0.1	145°50.4'	N 19°04.4'	Sirius	-1.4	258°29.1'	S 16°44.8'				
Hadar	+0.6	148°39.6'	S 60°28.6'	Canopus	-0.6	263°54.2'	S 52°42.6'				