

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	189°34.4'	179°00.8'	N 4°32.5'	177°10.9'	N 3°56.8'	223°47.3'	S 14°23.4'	235°35.5'	S 17°51.8'	114°27.7'	N 24°13.3'							
1	204°36.8'	194°01.0'	N 4°33.5'	192°10.5'	N 3°58.0'	238°49.3'	S 14°23.2'	250°37.8'	S 17°51.7'	129°28.5'	N 24°13.4'							
2	219°39.3'	209°01.2'	N 4°34.5'	207°10.1'	N 3°59.3'	253°51.3'	S 14°23.1'	265°40.1'	S 17°51.7'	144°29.3'	N 24°13.6'							
3	234°41.8'	224°01.4'	N 4°35.4'	222°09.7'	N 4°00.5'	268°53.3'	S 14°22.9'	280°42.3'	S 17°51.6'	159°30.2'	N 24°13.7'							
4	249°44.2'	239°01.6'	N 4°36.4'	237°09.4'	N 4°01.8'	283°55.3'	S 14°22.8'	295°44.6'	S 17°51.6'	174°31.0'	N 24°13.9'							
5	264°46.7'	254°01.8'	N 4°37.3'	252°09.0'	N 4°03.0'	298°57.3'	S 14°22.6'	310°46.9'	S 17°51.5'	189°31.8'	N 24°14.0'							
6	279°49.1'	269°01.9'	N 4°38.3'	267°08.6'	N 4°04.3'	313°59.2'	S 14°22.5'	325°49.1'	S 17°51.5'	204°32.7'	N 24°14.2'							
7	294°51.6'	284°02.1'	N 4°39.3'	282°08.2'	N 4°05.5'	329°01.2'	S 14°22.3'	340°51.4'	S 17°51.4'	219°33.5'	N 24°14.3'							
8	309°54.1'	299°02.3'	N 4°40.2'	297°07.8'	N 4°06.8'	344°03.2'	S 14°22.2'	355°53.7'	S 17°51.4'	234°34.3'	N 24°14.5'							
9	324°56.5'	314°02.5'	N 4°41.2'	312°07.4'	N 4°08.0'	359°05.2'	S 14°22.0'	10°55.9'	S 17°51.3'	249°35.2'	N 24°14.6'							
10	339°59.0'	329°02.7'	N 4°42.2'	327°07.0'	N 4°09.3'	14°07.2'	S 14°21.8'	25°58.2'	S 17°51.3'	264°36.0'	N 24°14.8'							
11	355°01.5'	344°02.9'	N 4°43.1'	342°06.7'	N 4°10.5'	29°09.2'	S 14°21.7'	41°00.5'	S 17°51.2'	279°36.8'	N 24°14.9'							
12	10°03.9'	359°03.1'	N 4°44.1'	357°06.3'	N 4°11.8'	44°11.2'	S 14°21.5'	56°02.7'	S 17°51.2'	294°37.7'	N 24°15.1'							
13	25°06.4'	14°03.2'	N 4°45.1'	12°05.9'	N 4°13.0'	59°13.1'	S 14°21.4'	71°05.0'	S 17°51.1'	309°38.5'	N 24°15.2'							
14	40°08.9'	29°03.4'	N 4°46.0'	27°05.5'	N 4°14.3'	74°15.1'	S 14°21.2'	86°07.3'	S 17°51.1'	324°39.3'	N 24°15.4'							
15	55°11.3'	44°03.6'	N 4°47.0'	42°05.1'	N 4°15.5'	89°17.1'	S 14°21.1'	101°09.6'	S 17°51.0'	339°40.2'	N 24°15.5'							
16	70°13.8'	59°03.8'	N 4°47.9'	57°04.7'	N 4°16.7'	104°19.1'	S 14°20.9'	116°11.8'	S 17°51.0'	354°41.0'	N 24°15.7'							
17	85°16.3'	74°04.0'	N 4°48.9'	72°04.3'	N 4°18.0'	119°21.1'	S 14°20.8'	131°14.1'	S 17°50.9'	9°41.8'	N 24°15.8'							
18	100°18.7'	89°04.2'	N 4°49.9'	87°04.0'	N 4°19.2'	134°23.1'	S 14°20.6'	146°16.4'	S 17°50.9'	24°42.7'	N 24°16.0'							
19	115°21.2'	104°04.4'	N 4°50.8'	102°03.6'	N 4°20.5'	149°25.1'	S 14°20.5'	161°18.6'	S 17°50.8'	39°43.5'	N 24°16.1'							
20	130°23.6'	119°04.5'	N 4°51.8'	117°03.2'	N 4°21.7'	164°27.1'	S 14°20.3'	176°20.9'	S 17°50.8'	54°44.3'	N 24°16.3'							
21	145°26.1'	134°04.7'	N 4°52.8'	132°02.8'	N 4°23.0'	179°29.0'	S 14°20.2'	191°23.2'	S 17°50.8'	69°45.1'	N 24°16.4'							
22	160°28.6'	149°04.9'	N 4°53.7'	147°02.4'	N 4°24.2'	194°31.0'	S 14°20.0'	206°25.4'	S 17°50.7'	84°46.0'	N 24°16.6'							
23	175°31.0'	164°05.1'	N 4°54.7'	162°02.0'	N 4°25.5'	209°33.0'	S 14°19.8'	221°27.7'	S 17°50.7'	99°46.8'	N 24°16.7'							
		SD 16.0' d 1.0'		v -0.4' d 1.2'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.8' d 0.1'								
Mer. pass.		12 h 3 m 49 s		12 h 12 m		9 h 4 m		8 h 16 m		16 h 21 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altares	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	315°11.6'	S 17°56.9'	6.6'	-11.5'	60.4'	86°54.3'	75°03.0'	68°15.1'	14°57.5'	32°23.1'	42°00.6'	86°12.4'	112°20.0'
1	329°37.2'	S 18°08.4'	6.5'	-11.4'	60.4'	86°17.9'	74°26.4'	67°45.2'	14°22.7'	32°59.3'	42°27.9'	86°49.2'	112°37.6'
2	344°02.7'	S 18°19.8'	6.5'	-11.3'	60.4'	85°41.6'	73°49.8'	67°15.5'	13°48.0'	33°35.6'	42°55.4'	87°26.0'	112°55.0'
3	358°28.2'	S 18°31.1'	6.4'	-11.1'	60.3'	85°05.4'	73°13.2'	66°45.8'	13°13.6'	34°11.8'	43°23.1'	88°02.7'	113°12.3'
4	12°53.6'	S 18°42.2'	6.4'	-11.0'	60.3'	84°29.1'	72°36.7'	66°16.2'	12°39.4'	34°48.1'	43°50.9'	88°39.5'	113°29.5'
5	27°18.9'	S 18°53.2'	6.3'	-10.9'	60.3'	83°52.9'	72°00.1'	65°46.7'	12°05.5'	35°24.3'	44°18.9'	89°16.2'	113°46.5'
6	41°44.2'	S 19°04.1'	6.3'	-10.8'	60.3'	83°16.7'	71°23.6'	65°17.3'	11°31.9'	36°00.5'	44°47.0'	89°52.8'	114°03.4'
7	56°09.5'	S 19°14.9'	6.2'	-10.6'	60.3'	82°40.5'	70°47.2'	64°48.0'	10°58.6'	36°36.7'	45°15.3'	90°29.5'	114°20.1'
8	70°34.7'	S 19°25.5'	6.1'	-10.5'	60.2'	82°04.4'	70°10.7'	64°18.7'	10°25.8'	37°12.9'	45°43.7'	91°06.1'	114°36.6'
9	84°59.8'	S 19°36.0'	6.1'	-10.3'	60.2'	81°28.3'	69°34.3'	63°49.6'	9°53.4'	37°49.1'	46°12.2'	91°42.7'	114°53.0'
10	99°24.9'	S 19°46.3'	6.0'	-10.2'	60.2'	80°52.2'	68°57.9'	63°20.5'	9°21.6'	38°25.3'	46°40.9'	92°19.3'	115°09.2'
11	113°50.0'	S 19°56.5'	6.0'	-10.1'	60.2'	80°16.1'	68°21.6'	62°51.5'	8°50.5'	39°01.4'	47°09.7'	92°55.8'	115°25.3'
12	128°15.0'	S 20°06.6'	5.9'	-9.9'	60.1'	79°40.1'	67°45.2'	62°22.7'		39°37.6'	47°38.6'	93°32.3'	115°41.2'
13	142°39.9'	S 20°16.5'	5.9'	-9.8'	60.1'	79°04.1'	67°08.9'	61°53.9'		40°13.7'	48°07.6'	94°08.8'	115°57.0'
14	157°04.8'	S 20°26.3'	5.8'	-9.6'	60.1'	78°28.1'	66°32.7'	61°25.3'		40°49.8'	48°36.7'	94°45.2'	116°12.6'
15	171°29.7'	S 20°36.0'	5.8'	-9.5'	60.1'	77°52.2'	65°56.4'	60°56.7'		41°25.9'	49°05.9'	95°21.6'	116°28.0'
16	185°54.5'	S 20°45.5'	5.8'	-9.4'	60.1'	77°16.3'	65°20.2'	60°28.3'		42°01.9'	49°35.2'	95°58.0'	116°43.2'
17	200°19.2'	S 20°54.8'	5.7'	-9.2'	60.0'	76°40.4'	64°44.1'	59°59.9'		42°38.0'	50°04.6'	96°34.3'	
18	214°43.9'	S 21°04.1'	5.7'	-9.1'	60.0'	76°04.5'	64°07.9'	59°31.7'		43°14.0'	50°34.1'	97°10.7'	
19	229°08.6'	S 21°13.1'	5.6'	-8.9'	60.0'	75°28.7'	63°31.8'	59°03.6'		43°50.0'	51°03.6'	97°46.9'	
20	243°33.2'	S 21°22.0'	5.6'	-8.8'	60.0'	74°53.0'	62°55.7'	58°35.6'		44°26.0'	51°33.3'	98°23.2'	
21	257°57.8'	S 21°30.8'	5.5'	-8.6'	59.9'	74°17.2'	62°19.7'	58°07.7'		45°01.9'	52°03.0'	98°59.4'	
22	272°22.3'	S 21°39.4'	5.5'	-8.5'	59.9'	73°41.5'	61°43.7'	57°40.0'		45°37.8'	52°32.8'	99°35.6'	
23	286°46.8'	S 21°47.9'	5.5'	-8.3'	59.9'	73°05.8'	61°07.7'	57°12.4'		46°13.8'	53°02.7'	100°11.8'	
Mer. pass.		3 h 6 m SD 16.5'		phase 85%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.3'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.1'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altares	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.3'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°50.5'	N 89°21.3'
Rigil Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°08.0'
Arcturus	-0.1	145°50.5'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.8'	S 52°42.7'				

Friday 02 April 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	190°33.5'	179°05.3'	N 4°55.6'	177°01.6'	N 4°26.7'		224°35.0'	S 14°19.7'		236°30.0'	S 17°50.6'		114°47.6'	N 24°16.9'				
1	205°36.0'	194°05.5'	N 4°56.6'	192°01.3'	N 4°28.0'		239°37.0'	S 14°19.5'		251°32.2'	S 17°50.6'		129°48.5'	N 24°17.0'				
2	220°38.4'	209°05.7'	N 4°57.6'	207°00.9'	N 4°29.2'		254°39.0'	S 14°19.4'		266°34.5'	S 17°50.5'		144°49.3'	N 24°17.2'				
3	235°40.9'	224°05.8'	N 4°58.5'	222°00.5'	N 4°30.5'		269°41.0'	S 14°19.2'		281°36.8'	S 17°50.5'		159°50.1'	N 24°17.3'				
4	250°43.4'	239°06.0'	N 4°59.5'	237°00.1'	N 4°31.7'		284°43.0'	S 14°19.1'		296°39.0'	S 17°50.4'		174°51.0'	N 24°17.4'				
5	265°45.8'	254°06.2'	N 5°00.4'	251°59.7'	N 4°32.9'		299°44.9'	S 14°18.9'		311°41.3'	S 17°50.4'		189°51.8'	N 24°17.6'				
6	280°48.3'	269°06.4'	N 5°01.4'	266°59.3'	N 4°34.2'		314°46.9'	S 14°18.8'		326°43.6'	S 17°50.3'		204°52.6'	N 24°17.7'				
7	295°50.7'	284°06.6'	N 5°02.4'	281°58.9'	N 4°35.4'		329°48.9'	S 14°18.6'		341°45.9'	S 17°50.3'		219°53.4'	N 24°17.9'				
8	310°53.2'	299°06.8'	N 5°03.3'	296°58.5'	N 4°36.7'		344°50.9'	S 14°18.5'		356°48.1'	S 17°50.2'		234°54.3'	N 24°18.0'				
9	325°55.7'	314°06.9'	N 5°04.3'	311°58.2'	N 4°37.9'		359°52.9'	S 14°18.3'		11°50.4'	S 17°50.2'		249°55.1'	N 24°18.2'				
10	340°58.1'	329°07.1'	N 5°05.2'	326°57.8'	N 4°39.2'		14°54.9'	S 14°18.2'		26°52.7'	S 17°50.1'		264°55.9'	N 24°18.3'				
11	356°00.6'	344°07.3'	N 5°06.2'	341°57.4'	N 4°40.4'		29°56.9'	S 14°18.0'		41°54.9'	S 17°50.1'		279°56.8'	N 24°18.5'				
12	11°03.1'	359°07.5'	N 5°07.2'	356°57.0'	N 4°41.6'		44°58.9'	S 14°17.9'		56°57.2'	S 17°50.0'		294°57.6'	N 24°18.6'				
13	26°05.5'	14°07.7'	N 5°08.1'	11°56.6'	N 4°42.9'		60°00.9'	S 14°17.7'		71°59.5'	S 17°50.0'		309°58.4'	N 24°18.7'				
14	41°08.0'	29°07.9'	N 5°09.1'	26°56.2'	N 4°44.1'		75°02.9'	S 14°17.6'		87°01.8'	S 17°49.9'		324°59.3'	N 24°18.9'				
15	56°10.5'	44°08.1'	N 5°10.0'	41°55.8'	N 4°45.4'		90°04.8'	S 14°17.4'		102°04.0'	S 17°49.9'		340°00.1'	N 24°19.0'				
16	71°12.9'	59°08.2'	N 5°11.0'	56°55.4'	N 4°46.6'		105°06.8'	S 14°17.2'		117°06.3'	S 17°49.8'		355°00.9'	N 24°19.2'				
17	86°15.4'	74°08.4'	N 5°12.0'	71°55.1'	N 4°47.9'		120°08.8'	S 14°17.1'		132°08.6'	S 17°49.8'		10°01.7'	N 24°19.3'				
18	101°17.9'	89°08.6'	N 5°12.9'	86°54.7'	N 4°49.1'		135°10.8'	S 14°16.9'		147°10.8'	S 17°49.7'		25°02.6'	N 24°19.4'				
19	116°20.3'	104°08.8'	N 5°13.9'	101°54.3'	N 4°50.4'		150°12.8'	S 14°16.8'		162°13.1'	S 17°49.7'		40°03.4'	N 24°19.6'				
20	131°22.8'	119°09.0'	N 5°14.8'	116°53.9'	N 4°51.6'		165°14.8'	S 14°16.6'		177°15.4'	S 17°49.6'		55°04.2'	N 24°19.7'				
21	146°25.2'	134°09.2'	N 5°15.8'	131°53.5'	N 4°52.8'		180°16.8'	S 14°16.5'		192°17.7'	S 17°49.6'		70°05.1'	N 24°19.9'				
22	161°27.7'	149°09.3'	N 5°16.7'	146°53.1'	N 4°54.1'		195°18.8'	S 14°16.3'		207°19.9'	S 17°49.6'		85°05.9'	N 24°20.0'				
23	176°30.2'	164°09.5'	N 5°17.7'	161°52.7'	N 4°55.3'		210°20.8'	S 14°16.2'		222°22.2'	S 17°49.5'		100°06.7'	N 24°20.1'				
		SD 16.0' d 1.0'		v -0.4' d 1.2'			v 2.0' d 0.2'			v 2.3' d 0.0'			v 0.8' d 0.1'					
Mer. pass.		12 h 3 m 31 s		12 h 12 m			9 h 0 m			8 h 13 m			16 h 20 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Saturn	-Altair	+Antares	+Spica	+Arcturus	+Regulus
0	301°11.3'	S 21°56.2'	5.4'	-8.2'	59.9'		72°30.2'	60°31.8'	56°44.9'		46°49.6'	53°32.6'	100°47.9'
1	315°35.7'	S 22°04.4'	5.4'	-8.0'	59.8'		71°54.5'	59°55.9'	56°17.5'		47°25.5'	54°02.6'	101°24.0'
2	330°00.1'	S 22°12.4'	5.3'	-7.9'	59.8'		71°19.0'	59°20.0'	55°50.3'		48°01.3'	54°32.6'	102°00.0'
3	344°24.4'	S 22°20.3'	5.3'	-7.7'	59.8'	119°52.1'	70°43.4'	58°44.1'	55°23.2'		48°37.1'	55°02.7'	102°36.1'
4	358°48.7'	S 22°28.0'	5.3'	-7.5'	59.8'	119°18.6'	70°07.9'	58°08.3'	54°56.3'		49°12.9'	55°32.9'	103°12.1'
5	13°13.0'	S 22°35.5'	5.2'	-7.4'	59.7'	118°45.1'	69°32.4'	57°32.6'	54°29.5'		49°48.6'	56°03.1'	103°48.0'
6	27°37.3'	S 22°42.9'	5.2'	-7.2'	59.7'	118°11.7'	68°57.0'	56°56.8'	54°02.8'		50°24.4'	56°33.4'	104°23.9'
7	42°01.5'	S 22°50.1'	5.2'	-7.1'	59.7'	117°38.3'	68°21.6'	56°21.1'	53°36.3'		51°00.0'	57°03.7'	104°59.8'
8	56°25.6'	S 22°57.2'	5.2'	-6.9'	59.7'	117°04.9'	67°46.2'	55°45.5'	53°10.0'		51°35.7'	57°34.0'	105°35.7'
9	70°49.8'	S 23°04.1'	5.1'	-6.7'	59.6'	116°31.6'	67°10.8'	55°09.9'	52°43.8'		52°11.3'	58°04.4'	106°11.5'
10	85°13.9'	S 23°10.8'	5.1'	-6.6'	59.6'	115°58.3'	66°35.5'	54°34.3'	52°17.8'		52°46.9'	58°34.8'	106°47.3'
11	99°38.0'	S 23°17.4'	5.1'	-6.4'	59.6'	115°25.0'	66°00.3'	53°58.7'	51°51.9'	8°30.5'	53°22.5'	59°05.3'	107°23.0'
12	114°02.1'	S 23°23.9'	5.0'	-6.3'	59.5'	114°51.8'	65°25.0'	53°23.2'	51°26.2'	9°00.5'	53°58.0'	59°35.7'	107°58.7'
13	128°26.1'	S 23°30.1'	5.0'	-6.1'	59.5'	114°18.6'	64°49.8'	52°47.7'	51°00.7'	9°31.1'	54°33.6'	60°06.3'	108°34.4'
14	142°50.2'	S 23°36.2'	5.0'	-5.9'	59.5'	113°45.4'	64°14.7'	52°12.3'	50°35.3'	10°02.3'	55°09.0'	60°36.8'	109°10.0'
15	157°14.2'	S 23°42.2'	5.0'	-5.8'	59.5'	113°12.3'	63°39.6'	51°36.9'	50°10.1'	10°33.9'	55°44.5'	61°07.4'	109°45.6'
16	171°38.2'	S 23°47.9'	5.0'	-5.6'	59.4'	112°39.2'	63°04.5'	51°01.5'	49°45.1'	11°05.9'	56°19.9'	61°38.0'	110°21.2'
17	186°02.1'	S 23°53.5'	5.0'	-5.4'	59.4'	112°06.1'	62°29.4'	50°26.2'	49°20.3'	11°38.2'	56°55.3'	62°08.6'	110°56.7'
18	200°26.1'	S 23°59.0'	4.9'	-5.3'	59.4'	111°33.1'	61°54.4'	49°50.9'	48°55.7'	12°10.8'	57°30.6'	62°39.2'	111°32.2'
19	214°50.0'	S 24°04.3'	4.9'	-5.1'	59.3'	111°00.1'	61°19.4'	49°15.6'	48°31.3'	12°43.6'	58°06.0'	63°09.9'	112°07.7'
20	229°13.9'	S 24°09.4'	4.9'	-4.9'	59.3'	110°27.1'	60°44.5'	48°40.4'	48°07.0'	13°16.6'	58°41.2'	63°40.5'	112°43.1'
21	243°37.9'	S 24°14.3'	4.9'	-4.8'	59.3'	109°54.2'	60°09.6'	48°05.2'	47°43.0'	13°49.8'	59°16.5'	64°11.2'	113°18.4'
22	258°01.8'	S 24°19.1'	4.9'	-4.6'	59.3'	109°21.3'	59°34.7'	47°30.1'	47°19.2'	14°23.2'	59°51.7'	64°41.9'	113°53.8'
23	272°25.7'	S 24°23.7'	4.9'	-4.4'	59.2'	108°48.4'	58°59.9'	46°55.0'	46°55.6'	14°56.6'	60°26.9'	65°12.6'	114°29.1'
Mer. pass.		4 h 5 m SD 16.3'		phase 76%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.3'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.1'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.3'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°50.6'	N 89°21.3'
Rigil Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°08.0'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.8'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	191°32.6'		179°09.7'	N 5°18.7'	176°52.3'	N 4°56.6'	225°22.8'	S 14°16.0'	237°24.5'	S 17°49.5'	115°07.5'	N 24°20.3'
1	206°35.1'		194°09.9'	N 5°19.6'	191°51.9'	N 4°57.8'	240°24.8'	S 14°15.9'	252°26.7'	S 17°49.4'	130°08.4'	N 24°20.4'
2	221°37.6'		209°10.1'	N 5°20.6'	206°51.6'	N 4°59.0'	255°26.8'	S 14°15.7'	267°29.0'	S 17°49.4'	145°09.2'	N 24°20.6'
3	236°40.0'		224°10.3'	N 5°21.5'	221°51.2'	N 5°00.3'	270°28.7'	S 14°15.6'	282°31.3'	S 17°49.3'	160°10.0'	N 24°20.7'
4	251°42.5'		239°10.4'	N 5°22.5'	236°50.8'	N 5°01.5'	285°30.7'	S 14°15.4'	297°33.6'	S 17°49.3'	175°10.8'	N 24°20.8'
5	266°45.0'		254°10.6'	N 5°23.4'	251°50.4'	N 5°02.8'	300°32.7'	S 14°15.3'	312°35.8'	S 17°49.2'	190°11.7'	N 24°21.0'
6	281°47.4'		269°10.8'	N 5°24.4'	266°50.0'	N 5°04.0'	315°34.7'	S 14°15.1'	327°38.1'	S 17°49.2'	205°12.5'	N 24°21.1'
7	296°49.9'		284°11.0'	N 5°25.4'	281°49.6'	N 5°05.2'	330°36.7'	S 14°15.0'	342°40.4'	S 17°49.1'	220°13.3'	N 24°21.3'
8	311°52.4'		299°11.2'	N 5°26.3'	296°49.2'	N 5°06.5'	345°38.7'	S 14°14.8'	357°42.7'	S 17°49.1'	235°14.2'	N 24°21.4'
9	326°54.8'		314°11.4'	N 5°27.3'	311°48.8'	N 5°07.7'	0°40.7'	S 14°14.6'	12°44.9'	S 17°49.0'	250°15.0'	N 24°21.5'
10	341°57.3'		329°11.5'	N 5°28.2'	326°48.4'	N 5°09.0'	15°42.7'	S 14°14.5'	27°47.2'	S 17°49.0'	265°15.8'	N 24°21.7'
11	356°59.7'		344°11.7'	N 5°29.2'	341°48.0'	N 5°10.2'	30°44.7'	S 14°14.3'	42°49.5'	S 17°48.9'	280°16.6'	N 24°21.8'
12	12°02.2'		359°11.9'	N 5°30.1'	356°47.6'	N 5°11.4'	45°46.7'	S 14°14.2'	57°51.7'	S 17°48.9'	295°17.5'	N 24°21.9'
13	27°04.7'		14°12.1'	N 5°31.1'	11°47.3'	N 5°12.7'	60°48.7'	S 14°14.0'	72°54.0'	S 17°48.8'	310°18.3'	N 24°22.1'
14	42°07.1'		29°12.3'	N 5°32.0'	26°46.9'	N 5°13.9'	75°50.7'	S 14°13.9'	87°56.3'	S 17°48.8'	325°19.1'	N 24°22.2'
15	57°09.6'		44°12.5'	N 5°33.0'	41°46.5'	N 5°15.2'	90°52.7'	S 14°13.7'	102°58.6'	S 17°48.7'	340°19.9'	N 24°22.3'
16	72°12.1'		59°12.6'	N 5°34.0'	56°46.1'	N 5°16.4'	105°54.7'	S 14°13.6'	118°00.8'	S 17°48.7'	355°20.8'	N 24°22.5'
17	87°14.5'		74°12.8'	N 5°34.9'	71°45.7'	N 5°17.6'	120°56.7'	S 14°13.4'	133°03.1'	S 17°48.7'	10°21.6'	N 24°22.6'
18	102°17.0'		89°13.0'	N 5°35.9'	86°45.3'	N 5°18.9'	135°58.7'	S 14°13.3'	148°05.4'	S 17°48.6'	25°22.4'	N 24°22.7'
19	117°19.5'		104°13.2'	N 5°36.8'	101°44.9'	N 5°20.1'	151°00.7'	S 14°13.1'	163°07.7'	S 17°48.6'	40°23.2'	N 24°22.9'
20	132°21.9'		119°13.4'	N 5°37.8'	116°44.5'	N 5°21.4'	166°02.6'	S 14°13.0'	178°09.9'	S 17°48.5'	55°24.1'	N 24°23.0'
21	147°24.4'		134°13.5'	N 5°38.7'	131°44.1'	N 5°22.6'	181°04.6'	S 14°12.8'	193°12.2'	S 17°48.5'	70°24.9'	N 24°23.1'
22	162°26.9'		149°13.7'	N 5°39.7'	146°43.7'	N 5°23.8'	196°06.6'	S 14°12.7'	208°14.5'	S 17°48.4'	85°25.7'	N 24°23.3'
23	177°29.3'		164°13.9'	N 5°40.6'	161°43.3'	N 5°25.1'	211°08.6'	S 14°12.5'	223°16.8'	S 17°48.4'	100°26.5'	N 24°23.4'
			SD 16.0' d 1.0'		v -0.4' d 1.2'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.8' d 0.1'	
Mer. pass.			12 h 3 m 13 s		12 h 13 m		8 h 57 m		8 h 9 m		16 h 19 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Spica
0	286°49.6'	S 24°28.1'	4.9'	-4.3'	59.2'	108°15.6'	58°25.1'	46°32.2'	46°20.0'	15°30.2'			61°02.1'
1	301°13.4'	S 24°32.4'	4.9'	-4.1'	59.2'	107°42.8'	57°50.4'	46°09.0'	45°44.9'	16°03.9'			61°37.2'
2	315°37.3'	S 24°36.5'	4.9'	-3.9'	59.1'	107°10.1'	57°15.7'	45°46.1'	45°10.0'	16°37.6'			62°12.3'
3	330°01.2'	S 24°40.5'	4.9'	-3.8'	59.1'	106°37.4'	56°41.0'	45°23.3'	44°35.0'	17°11.4'			62°47.3'
4	344°25.1'	S 24°44.2'	4.9'	-3.6'	59.1'	106°04.7'	56°06.3'	45°00.9'	44°00.1'	17°45.3'		52°04.1'	63°22.3'
5	358°49.0'	S 24°47.8'	4.9'	-3.4'	59.1'	105°32.1'	55°31.8'	44°38.6'	43°25.3'	18°19.2'		52°19.2'	63°57.3'
6	13°12.9'	S 24°51.3'	4.9'	-3.3'	59.0'	104°59.5'	54°57.2'	44°16.6'	42°50.4'	18°53.2'		52°34.5'	64°32.3'
7	27°36.8'	S 24°54.6'	4.9'	-3.1'	59.0'	104°26.9'	54°22.7'	43°54.9'	42°15.7'	19°27.2'		52°50.0'	65°07.2'
8	42°00.7'	S 24°57.6'	4.9'	-2.9'	59.0'	103°54.4'	53°48.2'	43°33.4'	41°40.9'	20°01.2'		53°05.7'	65°42.1'
9	56°24.6'	S 25°00.6'	4.9'	-2.8'	58.9'	103°21.9'	53°13.8'	43°12.1'	41°06.2'	20°35.2'		53°21.6'	66°16.9'
10	70°48.5'	S 25°03.3'	4.9'	-2.6'	58.9'	102°49.4'	52°39.3'	42°51.1'	40°31.6'	21°09.3'	49°36.9'	53°37.7'	66°51.7'
11	85°12.4'	S 25°05.9'	5.0'	-2.4'	58.9'	102°17.0'	52°05.0'	42°30.4'	39°57.0'	21°43.3'	49°51.9'	53°54.0'	67°26.5'
12	99°36.4'	S 25°08.4'	5.0'	-2.3'	58.8'	101°44.6'	51°30.7'	42°10.0'	39°22.4'	22°17.4'	50°07.2'	54°10.5'	68°01.2'
13	114°00.4'	S 25°10.6'	5.0'	-2.1'	58.8'	101°12.3'	50°56.4'	41°49.9'	38°47.8'	22°51.5'	50°22.7'	54°27.1'	68°35.9'
14	128°24.4'	S 25°12.7'	5.0'	-1.9'	58.8'	100°39.9'	50°22.1'	41°30.0'	38°13.4'	23°25.6'	50°38.5'	54°44.0'	69°10.6'
15	142°48.4'	S 25°14.6'	5.0'	-1.8'	58.7'	100°07.7'	49°47.9'	41°10.4'	37°38.9'	23°59.7'	50°54.4'	55°01.0'	69°45.3'
16	157°12.4'	S 25°16.4'	5.0'	-1.6'	58.7'	99°35.4'	49°13.8'	40°51.2'	37°04.5'	24°33.8'	51°10.6'	55°18.1'	70°19.9'
17	171°36.4'	S 25°18.0'	5.1'	-1.4'	58.7'	99°03.2'	48°39.6'	40°32.2'	36°30.1'	25°07.9'	51°26.9'	55°35.5'	70°54.4'
18	186°00.5'	S 25°19.4'	5.1'	-1.3'	58.7'	98°31.0'	48°05.5'	40°13.5'	35°55.8'	25°41.9'	51°43.5'	55°53.0'	71°28.9'
19	200°24.6'	S 25°20.6'	5.1'	-1.1'	58.6'	97°58.9'	47°31.5'	39°55.2'	35°21.5'	26°16.0'	52°00.3'	56°10.6'	72°03.4'
20	214°48.7'	S 25°21.7'	5.2'	-0.9'	58.6'	97°26.8'	46°57.5'	39°37.2'	34°47.3'	26°50.0'	52°17.2'	56°28.5'	72°37.9'
21	229°12.9'	S 25°22.6'	5.2'	-0.8'	58.6'	96°54.8'	46°23.5'	39°19.5'	34°13.1'	27°24.1'	52°34.4'	56°46.4'	73°12.3'
22	243°37.1'	S 25°23.4'	5.2'	-0.6'	58.5'	96°22.7'	45°49.6'	39°02.1'	33°39.0'	27°58.1'	52°51.7'	57°04.5'	73°46.7'
23	258°01.3'	S 25°24.0'	5.3'	-0.4'	58.5'	95°50.7'	45°15.7'	38°45.1'	33°04.9'	28°32.1'	53°09.2'	57°22.8'	74°21.1'
Mer. pass.			5 h 5 m SD 16.1'		phase 66%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.3'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.1'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.3'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°50.8'	N 89°21.3'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°08.0'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.8'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	192°31.8'		179°14.1'	N 5°41.6'	176°42.9'	N 5°26.3'	226°10.6'	S 14°12.4'	238°19.0'	S 17°48.3'	115°27.4'	N 24°23.5'
1	207°34.2'		194°14.3'	N 5°42.5'	191°42.5'	N 5°27.5'	241°12.6'	S 14°12.2'	253°21.3'	S 17°48.3'	130°28.2'	N 24°23.7'
2	222°36.7'		209°14.5'	N 5°43.5'	206°42.2'	N 5°28.8'	256°14.6'	S 14°12.1'	268°23.6'	S 17°48.2'	145°29.0'	N 24°23.8'
3	237°39.2'		224°14.6'	N 5°44.4'	221°41.8'	N 5°30.0'	271°16.6'	S 14°11.9'	283°25.9'	S 17°48.2'	160°29.9'	N 24°23.9'
4	252°41.6'		239°14.8'	N 5°45.4'	236°41.4'	N 5°31.2'	286°18.6'	S 14°11.8'	298°28.1'	S 17°48.1'	175°30.7'	N 24°24.1'
5	267°44.1'		254°15.0'	N 5°46.4'	251°41.0'	N 5°32.5'	301°20.6'	S 14°11.6'	313°30.4'	S 17°48.1'	190°31.5'	N 24°24.2'
6	282°46.6'		269°15.2'	N 5°47.3'	266°40.6'	N 5°33.7'	316°22.6'	S 14°11.5'	328°32.7'	S 17°48.0'	205°32.3'	N 24°24.3'
7	297°49.0'		284°15.4'	N 5°48.3'	281°40.2'	N 5°35.0'	331°24.6'	S 14°11.3'	343°35.0'	S 17°48.0'	220°33.1'	N 24°24.5'
8	312°51.5'		299°15.5'	N 5°49.2'	296°39.8'	N 5°36.2'	346°26.6'	S 14°11.2'	358°37.2'	S 17°48.0'	235°34.0'	N 24°24.6'
9	327°54.0'		314°15.7'	N 5°50.2'	311°39.4'	N 5°37.4'	1°28.6'	S 14°11.0'	13°39.5'	S 17°47.9'	250°34.8'	N 24°24.7'
10	342°56.4'		329°15.9'	N 5°51.1'	326°39.0'	N 5°38.7'	16°30.6'	S 14°10.9'	28°41.8'	S 17°47.9'	265°35.6'	N 24°24.9'
11	357°58.9'		344°16.1'	N 5°52.1'	341°38.6'	N 5°39.9'	31°32.6'	S 14°10.7'	43°44.1'	S 17°47.8'	280°36.4'	N 24°25.0'
12	13°01.4'		359°16.3'	N 5°53.0'	356°38.2'	N 5°41.1'	46°34.6'	S 14°10.6'	58°46.4'	S 17°47.8'	295°37.3'	N 24°25.1'
13	28°03.8'		14°16.4'	N 5°54.0'	11°37.8'	N 5°42.4'	61°36.6'	S 14°10.4'	73°48.6'	S 17°47.7'	310°38.1'	N 24°25.2'
14	43°06.3'		29°16.6'	N 5°54.9'	26°37.4'	N 5°43.6'	76°38.6'	S 14°10.2'	88°50.9'	S 17°47.7'	325°38.9'	N 24°25.4'
15	58°08.7'		44°16.8'	N 5°55.9'	41°37.0'	N 5°44.8'	91°40.6'	S 14°10.1'	103°53.2'	S 17°47.6'	340°39.7'	N 24°25.5'
16	73°11.2'		59°17.0'	N 5°56.8'	56°36.6'	N 5°46.1'	106°42.6'	S 14°09.9'	118°55.5'	S 17°47.6'	355°40.6'	N 24°25.6'
17	88°13.7'		74°17.2'	N 5°57.8'	71°36.2'	N 5°47.3'	121°44.6'	S 14°09.8'	133°57.7'	S 17°47.5'	10°41.4'	N 24°25.8'
18	103°16.1'		89°17.3'	N 5°58.7'	86°35.8'	N 5°48.5'	136°46.6'	S 14°09.6'	149°00.0'	S 17°47.5'	25°42.2'	N 24°25.9'
19	118°18.6'		104°17.5'	N 5°59.7'	101°35.4'	N 5°49.8'	151°48.6'	S 14°09.5'	164°02.3'	S 17°47.4'	40°43.0'	N 24°26.0'
20	133°21.1'		119°17.7'	N 6°00.6'	116°35.0'	N 5°51.0'	166°50.6'	S 14°09.3'	179°04.6'	S 17°47.4'	55°43.9'	N 24°26.1'
21	148°23.5'		134°17.9'	N 6°01.6'	131°34.6'	N 5°52.2'	181°52.6'	S 14°09.2'	194°06.9'	S 17°47.4'	70°44.7'	N 24°26.3'
22	163°26.0'		149°18.1'	N 6°02.5'	146°34.2'	N 5°53.5'	196°54.6'	S 14°09.0'	209°09.1'	S 17°47.3'	85°45.5'	N 24°26.4'
23	178°28.5'		164°18.2'	N 6°03.5'	161°33.8'	N 5°54.7'	211°56.6'	S 14°08.9'	224°11.4'	S 17°47.3'	100°46.3'	N 24°26.5'
			SD 16.0' d 1.0'		v -0.4' d 1.2'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.8' d 0.1'	
Mer. pass.			12 h 2 m 56 s		12 h 13 m		8 h 54 m		8 h 6 m		16 h 17 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Jupiter	-Altair	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	272°25.6'	S 25°24.4'	5.3'	-0.3'	58.5'	95°18.8'	44°41.8'	38°28.5'	32°30.8'	29°06.1'	53°26.8'	57°41.2'	68°51.6'
1	286°49.9'	S 25°24.6'	5.3'	-0.1'	58.4'	94°46.9'	44°08.0'	38°12.2'	31°56.8'	29°40.1'	53°44.7'	57°59.7'	69°08.0'
2	301°14.2'	S 25°24.7'	5.4'	0.1'	58.4'	94°15.0'	43°34.3'	37°56.2'	31°22.8'	30°14.0'	54°02.7'	58°18.4'	69°24.5'
3	315°38.6'	S 25°24.7'	5.4'	0.2'	58.4'	93°43.2'	43°00.5'	37°40.6'	30°48.9'	30°48.0'	54°20.8'	58°37.2'	69°41.0'
4	330°03.0'	S 25°24.4'	5.5'	0.4'	58.4'	93°11.4'	42°26.8'		30°15.0'	31°21.9'	54°39.2'	58°56.1'	69°57.6'
5	344°27.5'	S 25°24.0'	5.5'	0.6'	58.3'	92°39.6'	41°53.2'		29°41.2'	31°55.8'	54°57.6'	59°15.1'	70°14.3'
6	358°52.0'	S 25°23.5'	5.6'	0.7'	58.3'	92°07.9'	41°19.6'		29°07.4'	32°29.6'	55°16.3'	59°34.3'	70°31.1'
7	13°16.5'	S 25°22.8'	5.6'	0.9'	58.3'	91°36.2'	40°46.0'		28°33.7'	33°03.5'	55°35.0'	59°53.6'	70°48.0'
8	27°41.1'	S 25°21.9'	5.7'	1.0'	58.2'	91°04.5'	40°12.5'		27°60.0'	33°37.3'	55°54.0'	60°13.0'	71°04.9'
9	42°05.8'	S 25°20.8'	5.7'	1.2'	58.2'	90°32.9'	39°39.0'		27°26.3'	34°11.1'	56°13.0'	60°32.5'	71°21.9'
10	56°30.5'	S 25°19.6'	5.8'	1.4'	58.2'	90°01.3'	39°05.6'		26°52.7'	34°44.9'	56°32.2'	60°52.1'	71°39.0'
11	70°55.3'	S 25°18.3'	5.8'	1.5'	58.1'	89°29.7'	38°32.2'		26°19.2'	35°18.6'	56°51.5'	61°11.8'	71°56.1'
12	85°20.1'	S 25°16.8'	5.9'	1.7'	58.1'	88°58.2'	37°58.8'		25°45.7'	35°52.4'	57°11.0'	61°31.6'	72°13.3'
13	99°44.9'	S 25°15.1'	5.9'	1.8'	58.1'	88°26.7'	37°25.5'		25°12.3'	36°26.1'	57°30.6'	61°51.6'	72°30.6'
14	114°09.9'	S 25°13.2'	6.0'	2.0'	58.0'	87°55.3'	36°52.2'		24°38.9'	36°59.7'	57°50.3'	62°11.6'	72°47.9'
15	128°34.9'	S 25°11.3'	6.0'	2.1'	58.0'	87°23.9'	36°18.9'		24°05.6'	37°33.4'	58°10.1'	62°31.7'	73°05.3'
16	142°59.9'	S 25°09.1'	6.1'	2.3'	58.0'	86°52.5'	35°45.7'		23°32.3'	38°07.0'	58°30.0'	62°51.9'	73°22.7'
17	157°25.0'	S 25°06.8'	6.2'	2.5'	58.0'	86°21.1'	35°12.6'		22°59.1'	38°40.6'	58°50.1'	63°12.2'	73°40.2'
18	171°50.2'	S 25°04.4'	6.2'	2.6'	57.9'	85°49.8'	34°39.5'		22°25.9'	39°14.2'	59°10.2'	63°32.6'	73°57.8'
19	186°15.4'	S 25°01.8'	6.3'	2.8'	57.9'	85°18.6'	34°06.4'		21°52.8'	39°47.7'	59°30.5'	63°53.0'	74°15.4'
20	200°40.7'	S 24°59.0'	6.4'	2.9'	57.9'	84°47.3'	33°33.4'		21°19.7'	40°21.2'	59°50.9'	64°13.6'	74°33.0'
21	215°06.1'	S 24°56.1'	6.4'	3.1'	57.8'	84°16.1'	33°00.4'		20°46.8'	40°54.7'	60°11.3'	64°34.2'	74°50.7'
22	229°31.5'	S 24°53.1'	6.5'	3.2'	57.8'	83°44.9'	32°27.4'		20°13.8'	41°28.1'	60°31.9'	64°54.9'	75°08.5'
23	243°57.0'	S 24°49.8'	6.6'	3.4'	57.8'	83°13.8'	31°54.5'		19°41.0'	42°01.6'	60°52.6'	65°15.7'	75°26.2'
Mer. pass.			6 h 5 m SD 15.9'		phase 55%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.3'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.3'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°50.9'	N 89°21.3'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°08.0'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.8'	S 52°42.7'				

h	Aries	Sun		Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	193°30.9'	179°18.4'	N 6°04.4'	176°33.5'	N 5°55.9'	226°58.6'	S 14°08.7'	239°13.7'	S 17°47.2'	115°47.2'	N 24°26.6'
1	208°33.4'	194°18.6'	N 6°05.4'	191°33.1'	N 5°57.2'	242°00.6'	S 14°08.6'	254°16.0'	S 17°47.2'	130°48.0'	N 24°26.8'
2	223°35.8'	209°18.8'	N 6°06.3'	206°32.7'	N 5°58.4'	257°02.6'	S 14°08.4'	269°18.2'	S 17°47.1'	145°48.8'	N 24°26.9'
3	238°38.3'	224°19.0'	N 6°07.3'	221°32.3'	N 5°59.6'	272°04.6'	S 14°08.3'	284°20.5'	S 17°47.1'	160°49.6'	N 24°27.0'
4	253°40.8'	239°19.1'	N 6°08.2'	236°31.9'	N 6°00.9'	287°06.6'	S 14°08.1'	299°22.8'	S 17°47.0'	175°50.4'	N 24°27.1'
5	268°43.2'	254°19.3'	N 6°09.2'	251°31.5'	N 6°02.1'	302°08.6'	S 14°08.0'	314°25.1'	S 17°47.0'	190°51.3'	N 24°27.3'
6	283°45.7'	269°19.5'	N 6°10.1'	266°31.1'	N 6°03.3'	317°10.6'	S 14°07.8'	329°27.4'	S 17°46.9'	205°52.1'	N 24°27.4'
7	298°48.2'	284°19.7'	N 6°11.1'	281°30.7'	N 6°04.5'	332°12.6'	S 14°07.7'	344°29.6'	S 17°46.9'	220°52.9'	N 24°27.5'
8	313°50.6'	299°19.9'	N 6°12.0'	296°30.3'	N 6°05.8'	347°14.6'	S 14°07.5'	359°31.9'	S 17°46.8'	235°53.7'	N 24°27.6'
9	328°53.1'	314°20.0'	N 6°13.0'	311°29.9'	N 6°07.0'	2°16.6'	S 14°07.4'	14°34.2'	S 17°46.8'	250°54.6'	N 24°27.8'
10	343°55.6'	329°20.2'	N 6°13.9'	326°29.5'	N 6°08.2'	17°18.6'	S 14°07.2'	29°36.5'	S 17°46.8'	265°55.4'	N 24°27.9'
11	358°58.0'	344°20.4'	N 6°14.9'	341°29.1'	N 6°09.5'	32°20.6'	S 14°07.1'	44°38.8'	S 17°46.7'	280°56.2'	N 24°28.0'
12	14°00.5'	359°20.6'	N 6°15.8'	356°28.7'	N 6°10.7'	47°22.6'	S 14°06.9'	59°41.0'	S 17°46.7'	295°57.0'	N 24°28.1'
13	29°03.0'	14°20.7'	N 6°16.7'	11°28.3'	N 6°11.9'	62°24.6'	S 14°06.8'	74°43.3'	S 17°46.6'	310°57.8'	N 24°28.2'
14	44°05.4'	29°20.9'	N 6°17.7'	26°27.9'	N 6°13.2'	77°26.6'	S 14°06.6'	89°45.6'	S 17°46.6'	325°58.7'	N 24°28.4'
15	59°07.9'	44°21.1'	N 6°18.6'	41°27.5'	N 6°14.4'	92°28.6'	S 14°06.5'	104°47.9'	S 17°46.5'	340°59.5'	N 24°28.5'
16	74°10.3'	59°21.3'	N 6°19.6'	56°27.1'	N 6°15.6'	107°30.6'	S 14°06.3'	119°50.2'	S 17°46.5'	356°00.3'	N 24°28.6'
17	89°12.8'	74°21.5'	N 6°20.5'	71°26.7'	N 6°16.8'	122°32.6'	S 14°06.2'	134°52.4'	S 17°46.4'	11°01.1'	N 24°28.7'
18	104°15.3'	89°21.6'	N 6°21.5'	86°26.3'	N 6°18.1'	137°34.6'	S 14°06.0'	149°54.7'	S 17°46.4'	26°01.9'	N 24°28.9'
19	119°17.7'	104°21.8'	N 6°22.4'	101°25.9'	N 6°19.3'	152°36.6'	S 14°05.9'	164°57.0'	S 17°46.3'	41°02.8'	N 24°29.0'
20	134°20.2'	119°22.0'	N 6°23.4'	116°25.5'	N 6°20.5'	167°38.6'	S 14°05.7'	179°59.3'	S 17°46.3'	56°03.6'	N 24°29.1'
21	149°22.7'	134°22.2'	N 6°24.3'	131°25.1'	N 6°21.7'	182°40.6'	S 14°05.6'	195°01.6'	S 17°46.3'	71°04.4'	N 24°29.2'
22	164°25.1'	149°22.3'	N 6°25.3'	146°24.7'	N 6°23.0'	197°42.6'	S 14°05.4'	210°03.9'	S 17°46.2'	86°05.2'	N 24°29.3'
23	179°27.6'	164°22.5'	N 6°26.2'	161°24.3'	N 6°24.2'	212°44.6'	S 14°05.3'	225°06.1'	S 17°46.2'	101°06.0'	N 24°29.5'
		SD 16.0' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.2'		v 2.3' d 0.0'		v 0.8' d 0.1'	
Mer. pass.		12 h 2 m 39 s		12 h 14 m		8 h 51 m		8 h 2 m		16 h 16 m	

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acrux
0	258°22.6'	S 24°46.5'	6.6'	3.5'	57.7'	82°42.7'	44°01.7'	31°21.7'	19°08.2'	42°35.0'	61°13.3'	65°36.6'	75°44.1'
1	272°48.2'	S 24°43.0'	6.7'	3.6'	57.7'	82°11.6'	43°30.9'	30°48.9'	18°35.5'	43°08.3'	61°34.2'	65°57.5'	76°02.0'
2	287°14.0'	S 24°39.4'	6.8'	3.8'	57.7'	81°40.6'	43°00.2'	30°16.1'	18°02.9'	43°41.7'	61°55.1'	66°18.5'	76°19.9'
3	301°39.7'	S 24°35.6'	6.9'	3.9'	57.7'	81°09.6'	42°29.6'	29°43.4'	17°30.3'	44°15.0'	62°16.1'	66°39.5'	76°37.8'
4	316°05.6'	S 24°31.6'	6.9'	4.1'	57.6'	80°38.6'	41°59.0'	29°10.7'	16°57.9'	44°48.3'	62°37.2'	67°00.7'	76°55.8'
5	330°31.6'	S 24°27.6'	7.0'	4.2'	57.6'	80°07.7'	41°28.6'	28°38.1'	16°25.5'	45°21.5'	62°58.4'	67°21.8'	77°13.8'
6	344°57.6'	S 24°23.3'	7.1'	4.4'	57.6'	79°36.8'	40°58.2'	28°05.5'	15°53.2'	45°54.7'	63°19.7'	67°43.1'	77°31.9'
7	359°23.7'	S 24°19.0'	7.2'	4.5'	57.5'	79°06.0'	40°28.0'	27°33.0'	15°21.0'	46°27.9'	63°41.0'	68°04.4'	77°50.0'
8	13°49.8'	S 24°14.5'	7.3'	4.6'	57.5'	78°35.1'	39°57.8'	27°00.5'	14°49.0'	47°01.1'	64°02.5'	68°25.7'	78°08.1'
9	28°16.1'	S 24°09.8'	7.3'	4.8'	57.5'	78°04.3'	39°27.8'	26°28.0'	14°17.0'	47°34.2'	64°23.9'	68°47.2'	78°26.3'
10	42°42.4'	S 24°05.1'	7.4'	4.9'	57.4'	77°33.6'	38°57.8'	25°55.6'	13°45.2'	48°07.3'	64°45.5'	69°08.6'	78°44.5'
11	57°08.8'	S 24°00.2'	7.5'	5.0'	57.4'	77°02.8'	38°28.0'	25°23.3'	13°13.5'	48°40.4'	65°07.1'	69°30.1'	79°02.7'
12	71°35.3'	S 23°55.1'	7.6'	5.2'	57.4'	76°32.1'	37°58.2'	24°51.0'	12°41.9'	49°13.5'	65°28.8'	69°51.7'	79°20.9'
13	86°01.9'	S 23°49.9'	7.7'	5.3'	57.4'	76°01.5'	37°28.6'	24°18.8'	12°10.5'	49°46.5'	65°50.5'	70°13.3'	79°39.2'
14	100°28.6'	S 23°44.6'	7.7'	5.4'	57.3'	75°30.8'	36°59.1'	23°46.6'	11°39.3'	50°19.5'	66°12.4'	70°35.0'	79°57.5'
15	114°55.3'	S 23°39.2'	7.8'	5.6'	57.3'	75°00.2'	36°29.7'	23°14.4'	11°08.3'	50°52.4'	66°34.2'	70°56.7'	80°15.8'
16	129°22.2'	S 23°33.6'	7.9'	5.7'	57.3'	74°29.7'	36°00.5'	22°42.4'	10°37.6'	51°25.4'	66°56.2'	71°18.4'	80°34.1'
17	143°49.1'	S 23°27.9'	8.0'	5.8'	57.2'	73°59.1'	35°31.3'	22°10.4'	10°07.0'	51°58.3'	67°18.1'	71°40.2'	80°52.4'
18	158°16.1'	S 23°22.1'	8.1'	6.0'	57.2'	73°28.6'	35°02.3'	21°38.4'	9°36.8'	52°31.1'	67°40.2'	72°02.0'	81°10.8'
19	172°43.2'	S 23°16.1'	8.2'	6.1'	57.2'	72°58.1'	34°33.4'	21°06.5'	9°06.9'	53°04.0'	68°02.3'	72°23.9'	81°29.2'
20	187°10.3'	S 23°10.0'	8.3'	6.2'	57.2'	72°27.7'	34°04.7'	20°34.7'	8°37.4'	53°36.8'	68°24.4'	72°45.8'	81°47.6'
21	201°37.6'	S 23°03.8'	8.4'	6.3'	57.1'	71°57.3'	33°36.1'	20°02.9'	8°08.3'	54°09.6'	68°46.6'	73°07.7'	82°06.0'
22	216°05.0'	S 22°57.5'	8.4'	6.5'	57.1'	71°26.9'	33°07.7'	19°31.2'	7°39.7'	54°42.4'	69°08.8'	73°29.7'	82°24.4'
23	230°32.4'	S 22°51.0'	8.5'	6.6'	57.1'	70°56.5'	32°39.4'	18°59.6'	7°11.8'	55°15.1'	69°31.1'	73°51.7'	82°42.8'
Mer. pass.		7 h 3 m SD 15.7'		phase 44%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°51.1'	N 89°21.3'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°08.0'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.8'	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	194°30.1'	179°22.7'	N 6°27.2'	176°23.9'	N 6°25.4'	227°46.6'	S 14°05.1'	240°08.4'	S 17°46.1'	116°06.9'	N 24°29.6'							
1	209°32.5'	194°22.9'	N 6°28.1'	191°23.5'	N 6°26.7'	242°48.6'	S 14°05.0'	255°10.7'	S 17°46.1'	131°07.7'	N 24°29.7'							
2	224°35.0'	209°23.1'	N 6°29.0'	206°23.1'	N 6°27.9'	257°50.6'	S 14°04.8'	270°13.0'	S 17°46.0'	146°08.5'	N 24°29.8'							
3	239°37.5'	224°23.2'	N 6°30.0'	221°22.7'	N 6°29.1'	272°52.6'	S 14°04.7'	285°15.3'	S 17°46.0'	161°09.3'	N 24°29.9'							
4	254°39.9'	239°23.4'	N 6°30.9'	236°22.3'	N 6°30.3'	287°54.6'	S 14°04.5'	300°17.5'	S 17°45.9'	176°10.2'	N 24°30.0'							
5	269°42.4'	254°23.6'	N 6°31.9'	251°21.9'	N 6°31.6'	302°56.6'	S 14°04.4'	315°19.8'	S 17°45.9'	191°11.0'	N 24°30.2'							
6	284°44.8'	269°23.8'	N 6°32.8'	266°21.5'	N 6°32.8'	317°58.6'	S 14°04.2'	330°22.1'	S 17°45.9'	206°11.8'	N 24°30.3'							
7	299°47.3'	284°23.9'	N 6°33.8'	281°21.0'	N 6°34.0'	333°00.6'	S 14°04.1'	345°24.4'	S 17°45.8'	221°12.6'	N 24°30.4'							
8	314°49.8'	299°24.1'	N 6°34.7'	296°20.6'	N 6°35.2'	348°02.6'	S 14°03.9'	0°26.7'	S 17°45.8'	236°13.4'	N 24°30.5'							
9	329°52.2'	314°24.3'	N 6°35.6'	311°20.2'	N 6°36.5'	3°04.7'	S 14°03.8'	15°29.0'	S 17°45.7'	251°14.2'	N 24°30.6'							
10	344°54.7'	329°24.5'	N 6°36.6'	326°19.8'	N 6°37.7'	18°06.7'	S 14°03.6'	30°31.2'	S 17°45.7'	266°15.1'	N 24°30.7'							
11	359°57.2'	344°24.6'	N 6°37.5'	341°19.4'	N 6°38.9'	33°08.7'	S 14°03.5'	45°33.5'	S 17°45.6'	281°15.9'	N 24°30.9'							
12	14°59.6'	359°24.8'	N 6°38.5'	356°19.0'	N 6°40.1'	48°10.7'	S 14°03.3'	60°35.8'	S 17°45.6'	296°16.7'	N 24°31.0'							
13	30°02.1'	14°25.0'	N 6°39.4'	11°18.6'	N 6°41.4'	63°12.7'	S 14°03.2'	75°38.1'	S 17°45.5'	311°17.5'	N 24°31.1'							
14	45°04.6'	29°25.2'	N 6°40.4'	26°18.2'	N 6°42.6'	78°14.7'	S 14°03.0'	90°40.4'	S 17°45.5'	326°18.3'	N 24°31.2'							
15	60°07.0'	44°25.4'	N 6°41.3'	41°17.8'	N 6°43.8'	93°16.7'	S 14°02.9'	105°42.7'	S 17°45.5'	341°19.2'	N 24°31.3'							
16	75°09.5'	59°25.5'	N 6°42.2'	56°17.4'	N 6°45.0'	108°18.7'	S 14°02.7'	120°44.9'	S 17°45.4'	356°20.0'	N 24°31.4'							
17	90°11.9'	74°25.7'	N 6°43.2'	71°17.0'	N 6°46.2'	123°20.7'	S 14°02.6'	135°47.2'	S 17°45.4'	11°20.8'	N 24°31.6'							
18	105°14.4'	89°25.9'	N 6°44.1'	86°16.6'	N 6°47.5'	138°22.7'	S 14°02.4'	150°49.5'	S 17°45.3'	26°21.6'	N 24°31.7'							
19	120°16.9'	104°26.1'	N 6°45.1'	101°16.2'	N 6°48.7'	153°24.7'	S 14°02.3'	165°51.8'	S 17°45.3'	41°22.4'	N 24°31.8'							
20	135°19.3'	119°26.2'	N 6°46.0'	116°15.8'	N 6°49.9'	168°26.7'	S 14°02.1'	180°54.1'	S 17°45.2'	56°23.3'	N 24°31.9'							
21	150°21.8'	134°26.4'	N 6°47.0'	131°15.4'	N 6°51.1'	183°28.7'	S 14°02.0'	195°56.4'	S 17°45.2'	71°24.1'	N 24°32.0'							
22	165°24.3'	149°26.6'	N 6°47.9'	146°15.0'	N 6°52.3'	198°30.7'	S 14°01.8'	210°58.6'	S 17°45.1'	86°24.9'	N 24°32.1'							
23	180°26.7'	164°26.8'	N 6°48.8'	161°14.6'	N 6°53.6'	213°32.7'	S 14°01.7'	226°00.9'	S 17°45.1'	101°25.7'	N 24°32.2'							
		SD 16.0' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'								
Mer. pass.		12 h 2 m 22 s		12 h 15 m		8 h 48 m		7 h 58 m		16 h 15 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	-Saturn	+Antares	+Rigel Kent	+Hadar	+Acruz
0	244°59.9'	S 22°44.4'	8.6'	6.7'	57.0'	70°26.2'	32°11.2'	18°28.0'		55°47.8'	69°53.4'	74°13.7'	83°01.3'
1	259°27.5'	S 22°37.7'	8.7'	6.8'	57.0'	69°55.9'	31°43.2'	17°56.5'		56°20.5'	70°15.7'	74°35.7'	83°19.7'
2	273°55.2'	S 22°30.9'	8.8'	6.9'	57.0'	69°25.7'	31°15.4'	17°25.1'		56°53.1'	70°38.1'	74°57.8'	83°38.2'
3	288°23.0'	S 22°24.0'	8.9'	7.1'	57.0'	68°55.5'	30°47.8'	16°53.8'		57°25.8'	71°00.6'	75°19.9'	83°56.7'
4	302°50.9'	S 22°16.9'	9.0'	7.2'	56.9'	68°25.3'	30°20.3'	16°22.6'		57°58.3'	71°23.0'	75°42.0'	84°15.2'
5	317°18.9'	S 22°09.7'	9.1'	7.3'	56.9'	67°55.1'	29°53.0'	15°51.5'		58°30.9'	71°45.6'	76°04.2'	84°33.6'
6	331°47.0'	S 22°02.5'	9.2'	7.4'	56.9'	67°25.0'	29°26.0'	15°20.5'		59°03.4'	72°08.1'	76°26.4'	84°52.1'
7	346°15.1'	S 21°55.1'	9.2'	7.5'	56.9'	66°54.8'	28°59.1'	14°49.6'		59°36.0'	72°30.7'	76°48.6'	85°10.6'
8	0°43.4'	S 21°47.5'	9.3'	7.6'	56.8'	66°24.8'	28°32.4'	14°18.8'		60°08.4'	72°53.3'	77°10.8'	85°29.1'
9	15°11.7'	S 21°39.9'	9.4'	7.7'	56.8'	65°54.7'	28°05.9'	13°48.2'		60°40.9'	73°15.9'	77°33.0'	85°47.6'
10	29°40.1'	S 21°32.2'	9.5'	7.8'	56.8'	65°24.7'	27°39.7'	13°17.6'		61°13.3'	73°38.6'	77°55.2'	86°06.1'
11	44°08.7'	S 21°24.4'	9.6'	7.9'	56.7'	64°54.7'	27°13.7'	12°47.3'		61°45.7'	74°01.2'	78°17.5'	86°24.5'
12	58°37.3'	S 21°16.4'	9.7'	8.0'	56.7'	64°24.8'	26°47.9'	12°17.1'		62°18.1'	74°24.0'	78°39.8'	86°43.0'
13	73°06.0'	S 21°08.4'	9.8'	8.2'	56.7'	63°54.8'	26°22.4'	11°47.1'		62°50.4'	74°46.7'	79°02.1'	87°01.5'
14	87°34.8'	S 21°00.2'	9.9'	8.3'	56.7'	63°24.9'	25°57.1'	11°17.3'		63°22.8'	75°09.5'	79°24.4'	87°20.0'
15	102°03.6'	S 20°52.0'	10.0'	8.4'	56.6'	62°55.0'	25°32.2'	10°47.8'		63°55.1'	75°32.2'	79°46.7'	87°38.4'
16	116°32.6'	S 20°43.6'	10.1'	8.5'	56.6'	62°25.2'	25°07.5'	10°18.5'		64°27.3'	75°55.0'	80°09.0'	87°56.9'
17	131°01.7'	S 20°35.1'	10.2'	8.6'	56.6'	61°55.4'	24°43.1'	9°49.5'		64°59.6'	76°17.9'	80°31.4'	88°15.4'
18	145°30.8'	S 20°26.6'	10.2'	8.7'	56.6'	61°25.6'	24°19.0'	9°20.8'		65°31.8'	76°40.7'	80°53.7'	88°33.8'
19	160°00.1'	S 20°17.9'	10.3'	8.8'	56.5'	60°55.8'	23°55.3'	8°52.5'		66°04.0'	77°03.6'	81°16.0'	88°52.2'
20	174°29.4'	S 20°09.2'	10.4'	8.8'	56.5'	60°26.1'	23°31.8'	8°24.7'		66°36.1'	77°26.4'	81°38.4'	89°10.6'
21	188°58.8'	S 20°00.3'	10.5'	8.9'	56.5'	59°56.4'	23°08.8'	7°57.4'	6°57.5'	67°08.3'	77°49.3'	82°00.8'	89°29.1'
22	203°28.3'	S 19°51.4'	10.6'	9.0'	56.5'	59°26.7'	22°46.1'	7°30.7'	7°24.5'	67°40.4'	78°12.2'	82°23.1'	89°47.5'
23	217°57.9'	S 19°42.3'	10.7'	9.1'	56.4'	58°57.1'	22°23.8'		7°52.1'	68°12.5'	78°35.1'	82°45.5'	90°05.8'
Mer. pass.		7 h 57 m SD 15.6'		phase 33%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acruz	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°51.3'	N 89°21.3'
Rigel Kent	-0.0	139°43.9'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	195°29.2'	179°26.9' N 6°49.8'	176°14.2' N 6°54.8'	228°34.7' S 14°01.6'	241°03.2' S 17°45.1'	116°26.5' N 24°32.3'						
1	210°31.7'	194°27.1' N 6°50.7'	191°13.8' N 6°56.0'	243°36.8' S 14°01.4'	256°05.5' S 17°45.0'	131°27.3' N 24°32.5'						
2	225°34.1'	209°27.3' N 6°51.7'	206°13.4' N 6°57.2'	258°38.8' S 14°01.3'	271°07.8' S 17°45.0'	146°28.2' N 24°32.6'						
3	240°36.6'	224°27.5' N 6°52.6'	221°12.9' N 6°58.4'	273°40.8' S 14°01.1'	286°10.1' S 17°44.9'	161°29.0' N 24°32.7'						
4	255°39.1'	239°27.6' N 6°53.5'	236°12.5' N 6°59.7'	288°42.8' S 14°01.0'	301°12.4' S 17°44.9'	176°29.8' N 24°32.8'						
5	270°41.5'	254°27.8' N 6°54.5'	251°12.1' N 7°00.9'	303°44.8' S 14°00.8'	316°14.6' S 17°44.8'	191°30.6' N 24°32.9'						
6	285°44.0'	269°28.0' N 6°55.4'	266°11.7' N 7°02.1'	318°46.8' S 14°00.7'	331°16.9' S 17°44.8'	206°31.4' N 24°33.0'						
7	300°46.4'	284°28.2' N 6°56.3'	281°11.3' N 7°03.3'	333°48.8' S 14°00.5'	346°19.2' S 17°44.7'	221°32.3' N 24°33.1'						
8	315°48.9'	299°28.3' N 6°57.3'	296°10.9' N 7°04.5'	348°50.8' S 14°00.4'	1°21.5' S 17°44.7'	236°33.1' N 24°33.2'						
9	330°51.4'	314°28.5' N 6°58.2'	311°10.5' N 7°05.8'	3°52.8' S 14°00.2'	16°23.8' S 17°44.7'	251°33.9' N 24°33.3'						
10	345°53.8'	329°28.7' N 6°59.2'	326°10.1' N 7°07.0'	18°54.8' S 14°00.1'	31°26.1' S 17°44.6'	266°34.7' N 24°33.4'						
11	0°56.3'	344°28.9' N 7°00.1'	341°09.7' N 7°08.2'	33°56.8' S 13°59.9'	46°28.4' S 17°44.6'	281°35.5' N 24°33.6'						
12	15°58.8'	359°29.0' N 7°01.0'	356°09.3' N 7°09.4'	48°58.8' S 13°59.8'	61°30.6' S 17°44.5'	296°36.3' N 24°33.7'						
13	31°01.2'	14°29.2' N 7°02.0'	11°08.9' N 7°10.6'	64°00.9' S 13°59.6'	76°32.9' S 17°44.5'	311°37.2' N 24°33.8'						
14	46°03.7'	29°29.4' N 7°02.9'	26°08.5' N 7°11.8'	79°02.9' S 13°59.5'	91°35.2' S 17°44.4'	326°38.0' N 24°33.9'						
15	61°06.2'	44°29.5' N 7°03.9'	41°08.0' N 7°13.1'	94°04.9' S 13°59.3'	106°37.5' S 17°44.4'	341°38.8' N 24°34.0'						
16	76°08.6'	59°29.7' N 7°04.8'	56°07.6' N 7°14.3'	109°06.9' S 13°59.2'	121°39.8' S 17°44.4'	356°39.6' N 24°34.1'						
17	91°11.1'	74°29.9' N 7°05.7'	71°07.2' N 7°15.5'	124°08.9' S 13°59.0'	136°42.1' S 17°44.3'	11°40.4' N 24°34.2'						
18	106°13.6'	89°30.1' N 7°06.7'	86°06.8' N 7°16.7'	139°10.9' S 13°58.9'	151°44.4' S 17°44.3'	26°41.2' N 24°34.3'						
19	121°16.0'	104°30.2' N 7°07.6'	101°06.4' N 7°17.9'	154°12.9' S 13°58.7'	166°46.7' S 17°44.2'	41°42.1' N 24°34.4'						
20	136°18.5'	119°30.4' N 7°08.5'	116°06.0' N 7°19.1'	169°14.9' S 13°58.6'	181°48.9' S 17°44.2'	56°42.9' N 24°34.5'						
21	151°20.9'	134°30.6' N 7°09.5'	131°05.6' N 7°20.4'	184°16.9' S 13°58.4'	196°51.2' S 17°44.1'	71°43.7' N 24°34.6'						
22	166°23.4'	149°30.8' N 7°10.4'	146°05.2' N 7°21.6'	199°18.9' S 13°58.3'	211°53.5' S 17°44.1'	86°44.5' N 24°34.7'						
23	181°25.9'	164°30.9' N 7°11.3'	161°04.8' N 7°22.8'	214°21.0' S 13°58.1'	226°55.8' S 17°44.0'	101°45.3' N 24°34.8'						
		SD 16.0' d 0.9'	v -0.4' d 1.2'	v 2.0' d 0.1'	v 2.3' d 0.0'	v 0.8' d 0.1'						
Mer. pass.		12 h 2 m 5 s	12 h 15 m	8 h 45 m	7 h 55 m	16 h 13 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	-Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	232°27.6'	S 19°33.2'	10.8'	9.2'	56.4'	58°27.4'	22°01.9'		8°20.3'		68°44.5'	78°58.0'	83°07.8'
1	246°57.4'	S 19°24.0'	10.9'	9.3'	56.4'	57°57.9'	21°40.4'		8°48.8'		69°16.6'	79°21.0'	83°30.2'
2	261°27.3'	S 19°14.7'	11.0'	9.4'	56.4'	57°28.3'	21°19.4'		9°17.7'	38°11.1'	69°48.6'	79°43.9'	83°52.6'
3	275°57.2'	S 19°05.3'	11.0'	9.5'	56.3'	56°58.7'	20°58.8'		9°46.9'	38°26.3'	70°20.6'	80°06.9'	84°14.9'
4	290°27.3'	S 18°55.8'	11.1'	9.6'	56.3'	56°29.2'	20°38.8'		10°16.3'	38°41.7'	70°52.5'	80°29.8'	84°37.3'
5	304°57.4'	S 18°46.2'	11.2'	9.7'	56.3'	55°59.7'	20°19.2'		10°45.9'	38°57.4'	71°24.5'	80°52.8'	84°59.7'
6	319°27.6'	S 18°36.6'	11.3'	9.7'	56.3'	55°30.3'	20°00.1'		11°15.7'	39°13.4'	71°56.4'	81°15.8'	85°22.0'
7	333°57.9'	S 18°26.8'	11.4'	9.8'	56.2'	55°00.8'	19°41.6'		11°45.7'	39°29.6'	72°28.2'	81°38.7'	85°44.4'
8	348°28.3'	S 18°17.0'	11.5'	9.9'	56.2'	54°31.4'	19°23.7'		12°15.8'	39°46.1'	73°00.1'	82°01.7'	86°06.7'
9	2°58.8'	S 18°07.1'	11.6'	10.0'	56.2'	54°02.0'	19°06.4'		12°46.0'	40°02.9'	73°31.9'	82°24.7'	86°29.0'
10	17°29.4'	S 17°57.1'	11.6'	10.1'	56.2'	53°32.7'	18°49.7'		13°16.3'	40°19.8'	74°03.8'	82°47.7'	86°51.4'
11	32°00.0'	S 17°47.1'	11.7'	10.1'	56.1'	53°03.3'	18°33.7'		13°46.7'	40°37.1'	74°35.6'	83°10.7'	87°13.7'
12	46°30.8'	S 17°36.9'	11.8'	10.2'	56.1'	52°34.0'			14°17.2'	40°54.5'	75°07.3'	83°33.6'	87°36.0'
13	61°01.6'	S 17°26.7'	11.9'	10.3'	56.1'	52°04.8'			14°47.7'	41°12.2'	75°39.1'	83°56.6'	87°58.3'
14	75°32.5'	S 17°16.4'	12.0'	10.4'	56.1'	51°35.5'			15°18.3'	41°30.1'	76°10.8'	84°19.6'	88°20.6'
15	90°03.5'	S 17°06.0'	12.1'	10.4'	56.0'	51°06.3'			15°48.9'	41°48.2'	76°42.5'	84°42.6'	88°42.9'
16	104°34.5'	S 16°55.6'	12.1'	10.5'	56.0'	50°37.1'			16°19.6'	42°06.5'	77°14.1'	85°05.5'	89°05.1'
17	119°05.7'	S 16°45.1'	12.2'	10.6'	56.0'	50°07.9'			16°50.3'	42°25.0'	77°45.8'	85°28.5'	89°27.4'
18	133°36.9'	S 16°34.5'	12.3'	10.7'	56.0'	49°38.7'			17°21.0'	42°43.7'	78°17.4'	85°51.5'	89°49.6'
19	148°08.2'	S 16°23.8'	12.4'	10.7'	56.0'	49°09.6'			17°51.8'	43°02.6'	78°49.0'	86°14.4'	90°11.8'
20	162°39.6'	S 16°13.1'	12.5'	10.8'	55.9'	48°40.5'			18°22.5'	43°21.7'	79°20.6'	86°37.4'	90°34.0'
21	177°11.1'	S 16°02.3'	12.5'	10.9'	55.9'	48°11.4'		7°09.5'	18°53.3'	43°40.9'	79°52.2'	87°00.3'	90°56.2'
22	191°42.6'	S 15°51.5'	12.6'	10.9'	55.9'	47°42.3'		7°35.2'	19°24.1'	44°00.4'	80°23.7'	87°23.2'	91°18.4'
23	206°14.2'	S 15°40.5'	12.7'	11.0'	55.9'	47°13.3'		8°01.5'	19°54.9'	44°20.0'	80°55.2'	87°46.1'	91°40.5'
Mer. pass.													

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.3'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°51.6'	N 89°21.3'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	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	196°28.3'	179°31.1'	N 7°12.3'	176°04.3'	N 7°24.0'	229°23.0'	S 13°58.0'	241°58.1'	S 17°44.0'	116°46.1'	N 24°34.9'			
1	211°30.8'	194°31.3'	N 7°13.2'	191°03.9'	N 7°25.2'	244°25.0'	S 13°57.8'	257°00.4'	S 17°44.0'	131°47.0'	N 24°35.1'			
2	226°33.3'	209°31.4'	N 7°14.1'	206°03.5'	N 7°26.4'	259°27.0'	S 13°57.7'	272°02.7'	S 17°43.9'	146°47.8'	N 24°35.2'			
3	241°35.7'	224°31.6'	N 7°15.1'	221°03.1'	N 7°27.6'	274°29.0'	S 13°57.6'	287°05.0'	S 17°43.9'	161°48.6'	N 24°35.3'			
4	256°38.2'	239°31.8'	N 7°16.0'	236°02.7'	N 7°28.8'	289°31.0'	S 13°57.4'	302°07.2'	S 17°43.8'	176°49.4'	N 24°35.4'			
5	271°40.7'	254°32.0'	N 7°17.0'	251°02.3'	N 7°30.1'	304°33.0'	S 13°57.3'	317°09.5'	S 17°43.8'	191°50.2'	N 24°35.5'			
6	286°43.1'	269°32.1'	N 7°17.9'	266°01.9'	N 7°31.3'	319°35.0'	S 13°57.1'	332°11.8'	S 17°43.7'	206°51.0'	N 24°35.6'			
7	301°45.6'	284°32.3'	N 7°18.8'	281°01.5'	N 7°32.5'	334°37.1'	S 13°57.0'	347°14.1'	S 17°43.7'	221°51.8'	N 24°35.7'			
8	316°48.0'	299°32.5'	N 7°19.8'	296°01.0'	N 7°33.7'	349°39.1'	S 13°56.8'	2°16.4'	S 17°43.7'	236°52.7'	N 24°35.8'			
9	331°50.5'	314°32.7'	N 7°20.7'	311°00.6'	N 7°34.9'	4°41.1'	S 13°56.7'	17°18.7'	S 17°43.6'	251°53.5'	N 24°35.9'			
10	346°53.0'	329°32.8'	N 7°21.6'	326°00.2'	N 7°36.1'	19°43.1'	S 13°56.5'	32°21.0'	S 17°43.6'	266°54.3'	N 24°36.0'			
11	1°55.4'	344°33.0'	N 7°22.6'	340°59.8'	N 7°37.3'	34°45.1'	S 13°56.4'	47°23.3'	S 17°43.5'	281°55.1'	N 24°36.1'			
12	16°57.9'	359°33.2'	N 7°23.5'	355°59.4'	N 7°38.5'	49°47.1'	S 13°56.2'	62°25.6'	S 17°43.5'	296°55.9'	N 24°36.2'			
13	32°00.4'	14°33.3'	N 7°24.4'	10°59.0'	N 7°39.7'	64°49.1'	S 13°56.1'	77°27.9'	S 17°43.4'	311°56.7'	N 24°36.3'			
14	47°02.8'	29°33.5'	N 7°25.4'	25°58.6'	N 7°41.0'	79°51.1'	S 13°55.9'	92°30.1'	S 17°43.4'	326°57.5'	N 24°36.4'			
15	62°05.3'	44°33.7'	N 7°26.3'	40°58.1'	N 7°42.2'	94°53.2'	S 13°55.8'	107°32.4'	S 17°43.4'	341°58.4'	N 24°36.5'			
16	77°07.8'	59°33.9'	N 7°27.2'	55°57.7'	N 7°43.4'	109°55.2'	S 13°55.6'	122°34.7'	S 17°43.3'	356°59.2'	N 24°36.6'			
17	92°10.2'	74°34.0'	N 7°28.1'	70°57.3'	N 7°44.6'	124°57.2'	S 13°55.5'	137°37.0'	S 17°43.3'	11°60.0'	N 24°36.7'			
18	107°12.7'	89°34.2'	N 7°29.1'	85°56.9'	N 7°45.8'	139°59.2'	S 13°55.3'	152°39.3'	S 17°43.2'	27°00.8'	N 24°36.8'			
19	122°15.2'	104°34.4'	N 7°30.0'	100°56.5'	N 7°47.0'	155°01.2'	S 13°55.2'	167°41.6'	S 17°43.2'	42°01.6'	N 24°36.9'			
20	137°17.6'	119°34.5'	N 7°30.9'	115°56.1'	N 7°48.2'	170°03.2'	S 13°55.1'	182°43.9'	S 17°43.1'	57°02.4'	N 24°37.0'			
21	152°20.1'	134°34.7'	N 7°31.9'	130°55.6'	N 7°49.4'	185°05.3'	S 13°54.9'	197°46.2'	S 17°43.1'	72°03.2'	N 24°37.1'			
22	167°22.5'	149°34.9'	N 7°32.8'	145°55.2'	N 7°50.6'	200°07.3'	S 13°54.8'	212°48.5'	S 17°43.1'	87°04.1'	N 24°37.2'			
23	182°25.0'	164°35.0'	N 7°33.7'	160°54.8'	N 7°51.8'	215°09.3'	S 13°54.6'	227°50.8'	S 17°43.0'	102°04.9'	N 24°37.3'			
		SD 16.0' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'				
Mer. pass.		12 h 1 m 48 s		12 h 16 m		8 h 41 m		7 h 51 m		16 h 12 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Sun	-Fomalhaut	+Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar
0	220°45.9'	S 15°29.6'	12.8'	11.1'	55.8'	46°44.3'		8°28.3'	20°25.8'	44°39.8'	81°26.7'	88°09.0'	92°02.6'
1	235°17.7'	S 15°18.5'	12.9'	11.1'	55.8'	46°15.3'		8°55.6'	20°56.6'	44°59.7'	81°58.2'	88°31.9'	92°24.8'
2	249°49.6'	S 15°07.4'	12.9'	11.2'	55.8'	45°46.4'		9°23.2'	21°27.4'	45°19.8'	82°29.6'	88°54.8'	92°46.8'
3	264°21.5'	S 14°56.2'	13.0'	11.2'	55.8'	45°17.4'		9°51.1'	21°58.3'	45°40.1'	83°01.0'	89°17.7'	93°08.9'
4	278°53.5'	S 14°45.0'	13.1'	11.3'	55.8'	44°48.5'		10°19.4'	22°29.1'	46°00.5'	83°32.5'	89°40.5'	93°30.9'
5	293°25.6'	S 14°33.7'	13.1'	11.3'	55.7'	44°19.6'		10°47.8'	22°60.0'	46°21.1'	84°03.8'	90°03.4'	93°53.0'
6	307°57.7'	S 14°22.3'	13.2'	11.4'	55.7'	43°50.8'		11°16.5'	23°30.8'	46°41.7'	84°35.2'	90°26.2'	94°14.9'
7	322°30.0'	S 14°10.9'	13.3'	11.5'	55.7'	43°21.9'		11°45.4'	24°01.6'	47°02.6'	85°06.5'	90°49.0'	94°36.9'
8	337°02.2'	S 13°59.5'	13.4'	11.5'	55.7'	42°53.1'		12°14.4'	24°32.5'	47°23.6'	85°37.9'	91°11.8'	94°58.8'
9	351°34.6'	S 13°48.0'	13.4'	11.6'	55.6'	42°24.3'		12°43.5'	25°03.3'	47°44.7'	86°09.2'	91°34.6'	95°20.8'
10	6°07.0'	S 13°36.4'	13.5'	11.6'	55.6'	41°55.5'		13°12.7'	25°34.1'	48°05.9'	86°40.4'	91°57.3'	95°42.6'
11	20°39.5'	S 13°24.8'	13.6'	11.7'	55.6'	41°26.8'		13°42.1'	26°04.9'	48°27.3'	87°11.7'	92°20.1'	96°04.5'
12	35°12.1'	S 13°13.1'	13.6'	11.7'	55.6'	40°58.1'		14°11.5'	26°35.8'	48°48.7'	87°42.9'	92°42.8'	96°26.3'
13	49°44.8'	S 13°01.4'	13.7'	11.8'	55.6'	40°29.3'		14°41.0'	27°06.6'	49°10.3'	88°14.1'	93°05.5'	96°48.1'
14	64°17.5'	S 12°49.6'	13.8'	11.8'	55.5'	40°00.7'		15°10.6'	27°37.4'	49°32.0'	88°45.3'	93°28.2'	97°09.9'
15	78°50.2'	S 12°37.8'	13.8'	11.9'	55.5'			15°40.2'	28°08.1'	49°53.9'	89°16.5'	93°50.8'	97°31.6'
16	93°23.1'	S 12°25.9'	13.9'	11.9'	55.5'			16°09.9'	28°38.9'	50°15.8'	89°47.7'	94°13.4'	97°53.3'
17	107°56.0'	S 12°14.0'	14.0'	12.0'	55.5'			16°39.7'	29°09.7'	50°37.8'	90°18.8'	94°36.0'	98°14.9'
18	122°28.9'	S 12°02.0'	14.0'	12.0'	55.5'			17°09.4'	29°40.4'	50°60.0'	90°49.9'	94°58.6'	98°36.6'
19	137°02.0'	S 11°50.0'	14.1'	12.0'	55.4'			17°39.3'	30°11.2'	51°22.2'	91°21.0'	95°21.2'	98°58.2'
20	151°35.0'	S 11°38.0'	14.1'	12.1'	55.4'			18°09.1'	30°41.9'	51°44.5'	91°52.1'	95°43.7'	99°19.7'
21	166°08.2'	S 11°25.9'	14.2'	12.1'	55.4'			18°39.0'	31°12.7'	52°06.9'	92°23.2'	96°06.2'	99°41.2'
22	180°41.4'	S 11°13.8'	14.3'	12.2'	55.4'			19°08.9'	31°43.4'	52°29.5'	92°54.2'	96°28.7'	100°02.7'
23	195°14.7'	S 11°01.6'	14.3'	12.2'	55.4'			19°38.8'	32°14.1'	52°52.1'	93°25.2'	96°51.1'	100°24.1'
Mer. pass.		9 h 35 m SD 15.2'		phase 16%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.6'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.9'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°51.8'	N 89°21.3'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				



h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	197°27.5'		179°35.2'	N 7°34.7'	175°54.4'	N 7°53.0'	230°11.3'	S 13°54.5'	242°53.1'	S 17°43.0'	117°05.7'	N 24°37.4'
1	212°29.9'		194°35.4'	N 7°35.6'	190°54.0'	N 7°54.2'	245°13.3'	S 13°54.3'	257°55.3'	S 17°42.9'	132°06.5'	N 24°37.5'
2	227°32.4'		209°35.6'	N 7°36.5'	205°53.6'	N 7°55.5'	260°15.3'	S 13°54.2'	272°57.6'	S 17°42.9'	147°07.3'	N 24°37.6'
3	242°34.9'		224°35.7'	N 7°37.5'	220°53.1'	N 7°56.7'	275°17.3'	S 13°54.0'	287°59.9'	S 17°42.8'	162°08.1'	N 24°37.7'
4	257°37.3'		239°35.9'	N 7°38.4'	235°52.7'	N 7°57.9'	290°19.4'	S 13°53.9'	303°02.2'	S 17°42.8'	177°08.9'	N 24°37.8'
5	272°39.8'		254°36.1'	N 7°39.3'	250°52.3'	N 7°59.1'	305°21.4'	S 13°53.7'	318°04.5'	S 17°42.8'	192°09.8'	N 24°37.9'
6	287°42.3'		269°36.2'	N 7°40.2'	265°51.9'	N 8°00.3'	320°23.4'	S 13°53.6'	333°06.8'	S 17°42.7'	207°10.6'	N 24°38.0'
7	302°44.7'		284°36.4'	N 7°41.2'	280°51.5'	N 8°01.5'	335°25.4'	S 13°53.4'	348°09.1'	S 17°42.7'	222°11.4'	N 24°38.1'
8	317°47.2'		299°36.6'	N 7°42.1'	295°51.0'	N 8°02.7'	350°27.4'	S 13°53.3'	3°11.4'	S 17°42.6'	237°12.2'	N 24°38.2'
9	332°49.6'		314°36.7'	N 7°43.0'	310°50.6'	N 8°03.9'	5°29.4'	S 13°53.1'	18°13.7'	S 17°42.6'	252°13.0'	N 24°38.3'
10	347°52.1'		329°36.9'	N 7°44.0'	325°50.2'	N 8°05.1'	20°31.5'	S 13°53.0'	33°16.0'	S 17°42.6'	267°13.8'	N 24°38.4'
11	2°54.6'		344°37.1'	N 7°44.9'	340°49.8'	N 8°06.3'	35°33.5'	S 13°52.9'	48°18.3'	S 17°42.5'	282°14.6'	N 24°38.5'
12	17°57.0'		359°37.2'	N 7°45.8'	355°49.4'	N 8°07.5'	50°35.5'	S 13°52.7'	63°20.6'	S 17°42.5'	297°15.4'	N 24°38.6'
13	32°59.5'		14°37.4'	N 7°46.7'	10°48.9'	N 8°08.7'	65°37.5'	S 13°52.6'	78°22.9'	S 17°42.4'	312°16.3'	N 24°38.6'
14	48°02.0'		29°37.6'	N 7°47.7'	25°48.5'	N 8°09.9'	80°39.5'	S 13°52.4'	93°25.2'	S 17°42.4'	327°17.1'	N 24°38.7'
15	63°04.4'		44°37.7'	N 7°48.6'	40°48.1'	N 8°11.1'	95°41.5'	S 13°52.3'	108°27.4'	S 17°42.3'	342°17.9'	N 24°38.8'
16	78°06.9'		59°37.9'	N 7°49.5'	55°47.7'	N 8°12.3'	110°43.6'	S 13°52.1'	123°29.7'	S 17°42.3'	357°18.7'	N 24°38.9'
17	93°09.4'		74°38.1'	N 7°50.4'	70°47.3'	N 8°13.5'	125°45.6'	S 13°52.0'	138°32.0'	S 17°42.3'	12°19.5'	N 24°39.0'
18	108°11.8'		89°38.3'	N 7°51.4'	85°46.8'	N 8°14.7'	140°47.6'	S 13°51.8'	153°34.3'	S 17°42.2'	27°20.3'	N 24°39.1'
19	123°14.3'		104°38.4'	N 7°52.3'	100°46.4'	N 8°15.9'	155°49.6'	S 13°51.7'	168°36.6'	S 17°42.2'	42°21.1'	N 24°39.2'
20	138°16.8'		119°38.6'	N 7°53.2'	115°46.0'	N 8°17.1'	170°51.6'	S 13°51.5'	183°38.9'	S 17°42.1'	57°21.9'	N 24°39.3'
21	153°19.2'		134°38.8'	N 7°54.1'	130°45.6'	N 8°18.3'	185°53.7'	S 13°51.4'	198°41.2'	S 17°42.1'	72°22.8'	N 24°39.4'
22	168°21.7'		149°38.9'	N 7°55.1'	145°45.2'	N 8°19.5'	200°55.7'	S 13°51.2'	213°43.5'	S 17°42.1'	87°23.6'	N 24°39.5'
23	183°24.1'		164°39.1'	N 7°56.0'	160°44.7'	N 8°20.7'	215°57.7'	S 13°51.1'	228°45.8'	S 17°42.0'	102°24.4'	N 24°39.6'
			SD 16.0'	d 0.9'	v -0.4'	d 1.2'	v 2.0'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.1'
Mer. pass.			12 h 1 m 32 s		12 h 17 m		8 h 38 m		7 h 47 m		16 h 11 m	

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Antares	+Rigel Kent	+Hadar	+Acrux
0	209°48.0'	S 10°49.4'	14.4'	12.2'	55.3'	18°53.5'	20°08.7'	32°44.8'	53°14.8'	93°56.2'	97°13.5'	100°45.5'	104°29.0'
1	224°21.4'	S 10°37.1'	14.4'	12.3'	55.3'	19°09.9'	20°38.7'	33°15.4'	53°37.5'	94°27.2'	97°35.9'	101°06.9'	104°45.5'
2	238°54.8'	S 10°24.8'	14.5'	12.3'	55.3'	19°26.8'	21°08.6'	33°46.1'	54°00.4'	94°58.1'	97°58.2'	101°28.2'	105°01.8'
3	253°28.3'	S 10°12.5'	14.6'	12.4'	55.3'	19°44.3'	21°38.6'	34°16.8'	54°23.3'	95°29.1'	98°20.5'	101°49.5'	105°18.2'
4	268°01.9'	S 10°00.2'	14.6'	12.4'	55.3'	20°02.3'	22°08.6'	34°47.4'	54°46.3'	96°00.0'	98°42.8'	102°10.7'	105°34.4'
5	282°35.5'	S 9°47.8'	14.7'	12.4'	55.2'	20°20.8'	22°38.6'	35°18.0'	55°09.4'	96°30.9'	99°05.1'	102°31.9'	105°50.6'
6	297°09.1'	S 9°35.4'	14.7'	12.5'	55.2'	20°39.7'	23°08.6'	35°48.7'	55°32.6'	97°01.8'	99°27.3'	102°53.0'	106°06.7'
7	311°42.8'	S 9°22.9'	14.8'	12.5'	55.2'	20°59.1'	23°38.6'	36°19.3'	55°55.8'	97°32.7'	99°49.5'	103°14.1'	106°22.8'
8	326°16.6'	S 9°10.4'	14.8'	12.5'	55.2'	21°19.0'	24°08.6'	36°49.9'	56°19.1'	98°03.5'	100°11.6'	103°35.2'	106°38.8'
9	340°50.4'	S 8°57.9'	14.9'	12.6'	55.2'	21°39.2'	24°38.6'	37°20.4'	56°42.5'	98°34.4'	100°33.7'	103°56.2'	106°54.7'
10	355°24.3'	S 8°45.3'	14.9'	12.6'	55.2'	21°59.8'	25°08.6'	37°51.0'	57°05.9'	99°05.2'	100°55.8'	104°17.1'	107°10.5'
11	9°58.2'	S 8°32.8'	15.0'	12.6'	55.1'	22°20.8'	25°38.6'	38°21.6'	57°29.4'	99°36.0'	101°17.8'	104°38.0'	107°26.3'
12	24°32.1'	S 8°20.1'	15.0'	12.6'	55.1'	22°42.1'	26°08.6'	38°52.1'	57°53.0'	100°06.8'	101°39.8'	104°58.9'	107°42.0'
13	39°06.1'	S 8°07.5'	15.1'	12.7'	55.1'	23°03.8'	26°38.6'	39°22.6'	58°16.6'	100°37.5'	102°01.7'	105°19.7'	107°57.7'
14	53°40.2'	S 7°54.9'	15.1'	12.7'	55.1'	23°25.7'	27°08.6'	39°53.1'	58°40.2'	101°08.3'	102°23.6'	105°40.4'	108°13.2'
15	68°14.3'	S 7°42.2'	15.1'	12.7'	55.1'	23°48.0'	27°38.6'	40°23.6'	59°04.0'	101°39.0'	102°45.5'	106°01.1'	108°28.7'
16	82°48.4'	S 7°29.5'	15.2'	12.7'	55.1'	24°10.5'	28°08.5'	40°54.1'	59°27.7'	102°09.7'	103°07.3'	106°21.7'	108°44.1'
17	97°22.6'	S 7°16.7'	15.2'	12.8'	55.0'	24°33.4'	28°38.5'	41°24.6'	59°51.6'	102°40.4'	103°29.1'	106°42.3'	108°59.4'
18	111°56.8'	S 7°04.0'	15.3'	12.8'	55.0'	24°56.4'	29°08.5'	41°55.0'	60°15.5'	103°11.1'	103°50.8'	107°02.8'	109°14.6'
19	126°31.1'	S 6°51.2'	15.3'	12.8'	55.0'	25°19.8'	29°38.5'	42°25.5'	60°39.4'	103°41.7'	104°12.5'	107°23.3'	109°29.8'
20	141°05.4'	S 6°38.4'	15.3'	12.8'	55.0'	25°43.3'	30°08.4'	42°55.9'	61°03.4'	104°12.4'	104°34.2'	107°43.7'	
21	155°39.7'	S 6°25.6'	15.4'	12.8'	55.0'	26°07.1'	30°38.4'	43°26.3'	61°27.4'	104°43.0'	104°55.8'	108°04.0'	
22	170°14.1'	S 6°12.7'	15.4'	12.9'	55.0'	26°31.1'	31°08.4'	43°56.8'	61°51.5'	105°13.6'	105°17.3'	108°24.3'	
23	184°48.6'	S 5°59.9'	15.5'	12.9'	54.9'	26°55.2'	31°38.3'	44°27.1'	62°15.6'	105°44.2'	105°38.8'	108°44.5'	
Mer. pass.			10 h 19 m	SD 15.1'	phase 9%								

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.4'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°52.1'	N 89°21.3'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	198°26.6'	N 7°56.9'	179°39.3'	N 8°21.9'	175°44.3'	N 8°21.9'	230°59.7'	S 13°51.0'	243°48.1'	S 17°42.0'	117°25.2'	N 24°39.7'
1	213°29.1'	N 7°57.8'	194°39.4'	N 8°23.1'	190°43.9'	N 8°23.1'	246°01.7'	S 13°50.8'	258°50.4'	S 17°41.9'	132°26.0'	N 24°39.8'
2	228°31.5'	N 7°58.8'	209°39.6'	N 8°24.3'	205°43.5'	N 8°24.3'	261°03.8'	S 13°50.7'	273°52.7'	S 17°41.9'	147°26.8'	N 24°39.9'
3	243°34.0'	N 7°59.7'	224°39.8'	N 8°25.5'	220°43.0'	N 8°25.5'	276°05.8'	S 13°50.5'	288°55.0'	S 17°41.8'	162°27.6'	N 24°39.9'
4	258°36.5'	N 8°00.6'	239°39.9'	N 8°26.7'	235°42.6'	N 8°26.7'	291°07.8'	S 13°50.4'	303°57.3'	S 17°41.8'	177°28.4'	N 24°40.0'
5	273°38.9'	N 8°01.5'	254°40.1'	N 8°27.9'	250°42.2'	N 8°27.9'	306°09.8'	S 13°50.2'	318°59.6'	S 17°41.8'	192°29.2'	N 24°40.1'
6	288°41.4'	N 8°02.5'	269°40.3'	N 8°29.1'	265°41.8'	N 8°29.1'	321°11.8'	S 13°50.1'	334°01.9'	S 17°41.7'	207°30.1'	N 24°40.2'
7	303°43.9'	N 8°03.4'	284°40.4'	N 8°30.3'	280°41.3'	N 8°30.3'	336°13.9'	S 13°49.9'	349°04.2'	S 17°41.7'	222°30.9'	N 24°40.3'
8	318°46.3'	N 8°04.3'	299°40.6'	N 8°31.5'	295°40.9'	N 8°31.5'	351°15.9'	S 13°49.8'	4°06.5'	S 17°41.6'	237°31.7'	N 24°40.4'
9	333°48.8'	N 8°05.2'	314°40.8'	N 8°32.7'	310°40.5'	N 8°32.7'	6°17.9'	S 13°49.7'	19°08.8'	S 17°41.6'	252°32.5'	N 24°40.5'
10	348°51.3'	N 8°06.2'	329°40.9'	N 8°33.9'	325°40.1'	N 8°33.9'	21°19.9'	S 13°49.5'	34°11.1'	S 17°41.6'	267°33.3'	N 24°40.6'
11	3°53.7'	N 8°07.1'	344°41.1'	N 8°35.1'	340°39.6'	N 8°35.1'	36°21.9'	S 13°49.4'	49°13.3'	S 17°41.5'	282°34.1'	N 24°40.7'
12	18°56.2'	N 8°08.0'	359°41.3'	N 8°36.3'	355°39.2'	N 8°36.3'	51°24.0'	S 13°49.2'	64°15.6'	S 17°41.5'	297°34.9'	N 24°40.7'
13	33°58.6'	N 8°08.9'	14°41.4'	N 8°37.5'	10°38.8'	N 8°37.5'	66°26.0'	S 13°49.1'	79°17.9'	S 17°41.4'	312°35.7'	N 24°40.8'
14	49°01.1'	N 8°09.8'	29°41.6'	N 8°38.7'	25°38.4'	N 8°38.7'	81°28.0'	S 13°48.9'	94°20.2'	S 17°41.4'	327°36.5'	N 24°40.9'
15	64°03.6'	N 8°10.8'	44°41.7'	N 8°39.8'	40°37.9'	N 8°39.8'	96°30.0'	S 13°48.8'	109°22.5'	S 17°41.3'	342°37.3'	N 24°41.0'
16	79°06.0'	N 8°11.7'	59°41.9'	N 8°11.7'	55°37.5'	N 8°41.0'	111°32.1'	S 13°48.6'	124°24.8'	S 17°41.3'	357°38.2'	N 24°41.1'
17	94°08.5'	N 8°12.6'	74°42.1'	N 8°12.6'	70°37.1'	N 8°42.2'	126°34.1'	S 13°48.5'	139°27.1'	S 17°41.3'	12°39.0'	N 24°41.2'
18	109°11.0'	N 8°13.5'	89°42.2'	N 8°13.5'	85°36.6'	N 8°43.4'	141°36.1'	S 13°48.3'	154°29.4'	S 17°41.2'	27°39.8'	N 24°41.3'
19	124°13.4'	N 8°14.5'	104°42.4'	N 8°14.5'	100°36.2'	N 8°44.6'	156°38.1'	S 13°48.2'	169°31.7'	S 17°41.2'	42°40.6'	N 24°41.4'
20	139°15.9'	N 8°15.4'	119°42.6'	N 8°15.4'	115°35.8'	N 8°45.8'	171°40.1'	S 13°48.1'	184°34.0'	S 17°41.1'	57°41.4'	N 24°41.4'
21	154°18.4'	N 8°16.3'	134°42.7'	N 8°16.3'	130°35.4'	N 8°47.0'	186°42.2'	S 13°47.9'	199°36.3'	S 17°41.1'	72°42.2'	N 24°41.5'
22	169°20.8'	N 8°17.2'	149°42.9'	N 8°17.2'	145°34.9'	N 8°48.2'	201°44.2'	S 13°47.8'	214°38.6'	S 17°41.1'	87°43.0'	N 24°41.6'
23	184°23.3'	N 8°18.1'	164°43.1'	N 8°18.1'	160°34.5'	N 8°49.4'	216°46.2'	S 13°47.6'	229°40.9'	S 17°41.0'	102°43.8'	N 24°41.7'
			SD 16.0' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'	
Mer. pass.			12 h 1 m 16 s		12 h 17 m		8 h 35 m		7 h 44 m		16 h 9 m	

h	Moon					Lunar distance						
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Rigel Kent	+Antares	+Hadar
0	199°23.0'	S 5°47.0'	15.5'	12.9'	54.9'	27°19.6'	32°08.2'	44°57.5'	62°39.7'	106°00.2'	106°14.7'	109°04.7'
1	213°57.5'	S 5°34.1'	15.5'	12.9'	54.9'	27°44.2'	32°38.2'	45°27.9'	63°03.9'	106°21.6'	106°45.3'	109°24.8'
2	228°32.0'	S 5°21.2'	15.6'	12.9'	54.9'	28°08.9'	33°08.1'	45°58.2'	63°28.2'	106°43.0'	107°15.8'	109°44.8'
3	243°06.6'	S 5°08.3'	15.6'	12.9'	54.9'	28°33.8'	33°38.0'	46°28.6'	63°52.4'	107°04.3'	107°46.4'	110°04.8'
4	257°41.2'	S 4°55.4'	15.6'	12.9'	54.9'	28°58.8'	34°07.9'	46°58.9'	64°16.7'	107°25.5'	108°16.9'	110°24.7'
5	272°15.8'	S 4°42.4'	15.7'	13.0'	54.8'	29°24.0'	34°37.8'	47°29.2'	64°41.1'	107°46.7'	108°47.4'	110°44.5'
6	286°50.5'	S 4°29.5'	15.7'	13.0'	54.8'	29°49.3'	35°07.7'	47°59.5'	65°05.5'	108°07.8'	109°17.8'	111°04.2'
7	301°25.2'	S 4°16.5'	15.7'	13.0'	54.8'	30°14.8'	35°37.6'	48°29.8'	65°29.9'	108°28.9'	109°48.3'	111°23.9'
8	315°59.9'	S 4°03.5'	15.8'	13.0'	54.8'	30°40.4'	36°07.5'	49°00.1'	65°54.3'	108°49.9'	110°18.7'	111°43.5'
9	330°34.7'	S 3°50.5'	15.8'	13.0'	54.8'	31°06.1'	36°37.3'	49°30.3'	66°18.8'	109°10.8'	110°49.2'	112°03.1'
10	345°09.4'	S 3°37.5'	15.8'	13.0'	54.8'	31°31.9'	37°07.2'	50°00.6'	66°43.3'	109°31.7'	111°19.6'	112°22.5'
11	359°44.3'	S 3°24.5'	15.8'	13.0'	54.8'	31°57.9'	37°37.0'	50°30.8'	67°07.9'	109°52.5'	111°50.0'	112°41.9'
12	14°19.1'	S 3°11.5'	15.9'	13.0'	54.7'	32°23.9'	38°06.8'	51°01.0'	67°32.4'	110°13.3'	112°20.4'	113°01.2'
13	28°53.9'	S 2°58.5'	15.9'	13.0'	54.7'	32°50.1'	38°36.7'	51°31.2'	67°57.0'	110°34.0'	112°50.7'	113°20.5'
14	43°28.8'	S 2°45.5'	15.9'	13.0'	54.7'	33°16.3'	39°06.5'	52°01.4'	68°21.6'	110°54.7'	113°21.1'	113°39.6'
15	58°03.7'	S 2°32.4'	15.9'	13.0'	54.7'	33°42.7'	39°36.3'	52°31.6'	68°46.3'	111°15.2'	113°51.4'	113°58.7'
16	72°38.7'	S 2°19.4'	15.9'	13.0'	54.7'	34°09.1'	40°06.1'	53°01.8'	69°11.0'	111°35.7'	114°21.7'	114°17.7'
17	87°13.6'	S 2°06.4'	16.0'	13.0'	54.7'	34°35.6'	40°35.9'	53°31.9'	69°35.6'	111°56.2'	114°52.0'	114°36.6'
18	101°48.6'	S 1°53.3'	16.0'	13.0'	54.6'	35°02.2'	41°05.6'	54°02.1'	70°00.4'	112°16.5'	115°22.3'	114°55.4'
19	116°23.6'	S 1°40.3'	16.0'	13.0'	54.6'	35°28.9'	41°35.4'	54°32.2'	70°25.1'	112°36.8'	115°52.6'	115°14.2'
20	130°58.6'	S 1°27.2'	16.0'	13.0'	54.6'	35°55.6'	42°05.1'	55°02.3'	70°49.8'	112°57.1'	116°22.8'	115°32.8'
21	145°33.6'	S 1°14.2'	16.0'	13.0'	54.6'	36°22.4'	42°34.9'	55°32.4'	71°14.6'	113°17.2'	116°53.1'	115°51.4'
22	160°08.7'	S 1°01.2'	16.1'	13.0'	54.6'	36°49.3'	43°04.6'	56°02.5'	71°39.4'	113°37.3'	117°23.3'	116°09.8'
23	174°43.7'	S 0°48.1'	16.1'	13.0'	54.6'	37°16.3'	43°34.3'	56°32.6'	72°04.2'	113°57.3'	117°53.5'	116°28.2'
Mer. pass.			11 h 1 m SD 15.0'		phase 4%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.7'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.0'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°52.3'	N 89°21.3'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	199°25.7'	N 8°19.0'	179°43.2'	N 8°19.0'	175°34.1'	N 8°50.6'	231°48.2'	S 13°47.5'	244°43.2'	S 17°41.0'	117°44.6'	N 24°41.8'
1	214°28.2'	N 8°20.0'	194°43.4'	N 8°20.0'	190°33.6'	N 8°51.8'	246°50.3'	S 13°47.3'	259°45.5'	S 17°40.9'	132°45.4'	N 24°41.9'
2	229°30.7'	N 8°20.9'	209°43.6'	N 8°20.9'	205°33.2'	N 8°53.0'	261°52.3'	S 13°47.2'	274°47.8'	S 17°40.9'	147°46.3'	N 24°41.9'
3	244°33.1'	N 8°21.8'	224°43.7'	N 8°21.8'	220°32.8'	N 8°54.1'	276°54.3'	S 13°47.0'	289°50.1'	S 17°40.9'	162°47.1'	N 24°42.0'
4	259°35.6'	N 8°22.7'	239°43.9'	N 8°22.7'	235°32.3'	N 8°55.3'	291°56.3'	S 13°46.9'	304°52.4'	S 17°40.8'	177°47.9'	N 24°42.1'
5	274°38.1'	N 8°23.6'	254°44.0'	N 8°23.6'	250°31.9'	N 8°56.5'	306°58.4'	S 13°46.8'	319°54.7'	S 17°40.8'	192°48.7'	N 24°42.2'
6	289°40.5'	N 8°24.6'	269°44.2'	N 8°24.6'	265°31.5'	N 8°57.7'	322°00.4'	S 13°46.6'	334°57.0'	S 17°40.7'	207°49.5'	N 24°42.3'
7	304°43.0'	N 8°25.5'	284°44.4'	N 8°25.5'	280°31.1'	N 8°58.9'	337°02.4'	S 13°46.5'	349°59.3'	S 17°40.7'	222°50.3'	N 24°42.4'
8	319°45.5'	N 8°26.4'	299°44.5'	N 8°26.4'	295°30.6'	N 9°00.1'	352°04.4'	S 13°46.3'	5°01.6'	S 17°40.7'	237°51.1'	N 24°42.4'
9	334°47.9'	N 8°27.3'	314°44.7'	N 8°27.3'	310°30.2'	N 9°01.3'	7°06.5'	S 13°46.2'	20°03.9'	S 17°40.6'	252°51.9'	N 24°42.5'
10	349°50.4'	N 8°28.2'	329°44.9'	N 8°28.2'	325°29.8'	N 9°02.5'	22°08.5'	S 13°46.0'	35°06.2'	S 17°40.6'	267°52.7'	N 24°42.6'
11	4°52.9'	N 8°29.1'	344°45.0'	N 8°29.1'	340°29.3'	N 9°03.7'	37°10.5'	S 13°45.9'	50°08.5'	S 17°40.5'	282°53.5'	N 24°42.7'
12	19°55.3'	N 8°30.1'	359°45.2'	N 8°30.1'	355°28.9'	N 9°04.8'	52°12.5'	S 13°45.8'	65°10.8'	S 17°40.5'	297°54.3'	N 24°42.8'
13	34°57.8'	N 8°31.0'	14°45.3'	N 8°31.0'	10°28.5'	N 9°06.0'	67°14.6'	S 13°45.6'	80°13.1'	S 17°40.5'	312°55.2'	N 24°42.9'
14	50°00.2'	N 8°31.9'	29°45.5'	N 8°31.9'	25°28.0'	N 9°07.2'	82°16.6'	S 13°45.5'	95°15.4'	S 17°40.4'	327°56.0'	N 24°42.9'
15	65°02.7'	N 8°32.8'	44°45.7'	N 8°32.8'	40°27.6'	N 9°08.4'	97°18.6'	S 13°45.3'	110°17.7'	S 17°40.4'	342°56.8'	N 24°43.0'
16	80°05.2'	N 8°33.7'	59°45.8'	N 8°33.7'	55°27.2'	N 9°09.6'	112°20.6'	S 13°45.2'	125°20.0'	S 17°40.3'	357°57.6'	N 24°43.1'
17	95°07.6'	N 8°34.6'	74°46.0'	N 8°34.6'	70°26.7'	N 9°10.8'	127°22.7'	S 13°45.0'	140°22.3'	S 17°40.3'	12°58.4'	N 24°43.2'
18	110°10.1'	N 8°35.6'	89°46.2'	N 8°35.6'	85°26.3'	N 9°12.0'	142°24.7'	S 13°44.9'	155°24.6'	S 17°40.3'	27°59.2'	N 24°43.3'
19	125°12.6'	N 8°36.5'	104°46.3'	N 8°36.5'	100°25.9'	N 9°13.1'	157°26.7'	S 13°44.7'	170°26.9'	S 17°40.2'	43°00.0'	N 24°43.3'
20	140°15.0'	N 8°37.4'	119°46.5'	N 8°37.4'	115°25.4'	N 9°14.3'	172°28.8'	S 13°44.6'	185°29.2'	S 17°40.2'	58°00.8'	N 24°43.4'
21	155°17.5'	N 8°38.3'	134°46.6'	N 8°38.3'	130°25.0'	N 9°15.5'	187°30.8'	S 13°44.5'	200°31.5'	S 17°40.1'	73°01.6'	N 24°43.5'
22	170°20.0'	N 8°39.2'	149°46.8'	N 8°39.2'	145°24.5'	N 9°16.7'	202°32.8'	S 13°44.3'	215°33.8'	S 17°40.1'	88°02.4'	N 24°43.6'
23	185°22.4'	N 8°40.1'	164°47.0'	N 8°40.1'	160°24.1'	N 9°17.9'	217°34.8'	S 13°44.2'	230°36.1'	S 17°40.1'	103°03.2'	N 24°43.6'
			SD 16.0' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'	
Mer. pass.			12 h 1 m 0 s		12 h 18 m		8 h 32 m		7 h 40 m		16 h 8 m	

h	Moon				Lunar distance							
	GHA	dec	v	d	HP	+Fomalhaut	+Jupiter	+Saturn	+Altair	+Rigel Kent	+Hadar	+Antares
0	189°18.8'	S 0°35.1'	16.1'	13.0'	54.6'	37°43.3'	44°04.0'	57°02.7'	72°29.1'	114°17.2'	116°46.5'	118°23.7'
1	203°53.9'	S 0°22.1'	16.1'	13.0'	54.6'	38°10.4'	44°33.7'	57°32.7'	72°53.9'	114°37.1'	117°04.7'	118°53.9'
2	218°29.0'	S 0°09.0'	16.1'	13.0'	54.5'	38°37.5'	45°03.4'	58°02.8'	73°18.8'	114°56.9'	117°22.8'	119°24.1'
3	233°04.1'	N 0°04.0'	16.1'	13.0'	54.5'	39°04.7'	45°33.1'	58°32.8'	73°43.6'	115°16.6'	117°40.8'	119°54.2'
4	247°39.2'	N 0°17.0'	16.1'	13.0'	54.5'	39°31.9'	46°02.8'	59°02.8'	74°08.5'	115°36.2'	117°58.7'	
5	262°14.4'	N 0°30.0'	16.2'	13.0'	54.5'	39°59.2'	46°32.4'	59°32.8'	74°33.4'	115°55.7'	118°16.5'	
6	276°49.5'	N 0°43.0'	16.2'	13.0'	54.5'	40°26.5'	47°02.1'	60°02.8'	74°58.4'	116°15.1'	118°34.2'	
7	291°24.7'	N 0°56.0'	16.2'	13.0'	54.5'	40°53.9'	47°31.7'	60°32.8'	75°23.3'	116°34.5'	118°51.8'	
8	305°59.9'	N 1°09.0'	16.2'	13.0'	54.5'							
9	320°35.0'	N 1°22.0'	16.2'	13.0'	54.5'							
10	335°10.2'	N 1°35.0'	16.2'	13.0'	54.4'							
11	349°45.4'	N 1°47.9'	16.2'	12.9'	54.4'							
12	4°20.6'	N 2°00.9'	16.2'	12.9'	54.4'							
13	18°55.8'	N 2°13.8'	16.2'	12.9'	54.4'							
14	33°31.0'	N 2°26.7'	16.2'	12.9'	54.4'							
15	48°06.2'	N 2°39.6'	16.2'	12.9'	54.4'							
16	62°41.4'	N 2°52.5'	16.2'	12.9'	54.4'							
17	77°16.6'	N 3°05.4'	16.2'	12.9'	54.4'							
18	91°51.8'	N 3°18.2'	16.2'	12.8'	54.3'							
19	106°27.0'	N 3°31.1'	16.2'	12.8'	54.3'							
20	121°02.2'	N 3°43.9'	16.2'	12.8'	54.3'							
21	135°37.4'	N 3°56.7'	16.2'	12.8'	54.3'							
22	150°12.6'	N 4°09.5'	16.2'	12.8'	54.3'							
23	164°47.8'	N 4°22.3'	16.2'	12.7'	54.3'							
Mer. pass.			11 h 42 m	SD 14.9'	phase 1%							

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°52.5'	N 89°21.3'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

Monday 12 April 2021 UT1

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	200°24.9'	179°47.1' N 8°41.0'	175°23.7'	N 9°19.1'	232°36.9'	S 13°44.0'	245°38.4'	S 17°40.0'	118°04.0'	N 24°43.7'		
1	215°27.3'	194°47.3' N 8°41.9'	190°23.2'	N 9°20.2'	247°38.9'	S 13°43.9'	260°40.7'	S 17°40.0'	133°04.8'	N 24°43.8'		
2	230°29.8'	209°47.4' N 8°42.9'	205°22.8'	N 9°21.4'	262°40.9'	S 13°43.7'	275°43.0'	S 17°39.9'	148°05.7'	N 24°43.9'		
3	245°32.3'	224°47.6' N 8°43.8'	220°22.4'	N 9°22.6'	277°43.0'	S 13°43.6'	290°45.3'	S 17°39.9'	163°06.5'	N 24°44.0'		
4	260°34.7'	239°47.8' N 8°44.7'	235°21.9'	N 9°23.8'	292°45.0'	S 13°43.5'	305°47.6'	S 17°39.9'	178°07.3'	N 24°44.0'		
5	275°37.2'	254°47.9' N 8°45.6'	250°21.5'	N 9°25.0'	307°47.0'	S 13°43.3'	320°49.9'	S 17°39.8'	193°08.1'	N 24°44.1'		
6	290°39.7'	269°48.1' N 8°46.5'	265°21.0'	N 9°26.1'	322°49.0'	S 13°43.2'	335°52.2'	S 17°39.8'	208°08.9'	N 24°44.2'		
7	305°42.1'	284°48.3' N 8°47.4'	280°20.6'	N 9°27.3'	337°51.1'	S 13°43.0'	350°54.5'	S 17°39.7'	223°09.7'	N 24°44.3'		
8	320°44.6'	299°48.4' N 8°48.3'	295°20.2'	N 9°28.5'	352°53.1'	S 13°42.9'	5°56.8'	S 17°39.7'	238°10.5'	N 24°44.3'		
9	335°47.1'	314°48.6' N 8°49.2'	310°19.7'	N 9°29.7'	7°55.1'	S 13°42.7'	20°59.1'	S 17°39.7'	253°11.3'	N 24°44.4'		
10	350°49.5'	329°48.7' N 8°50.2'	325°19.3'	N 9°30.9'	22°57.2'	S 13°42.6'	36°01.4'	S 17°39.6'	268°12.1'	N 24°44.5'		
11	5°52.0'	344°48.9' N 8°51.1'	340°18.9'	N 9°32.0'	37°59.2'	S 13°42.5'	51°03.7'	S 17°39.6'	283°12.9'	N 24°44.6'		
12	20°54.5'	359°49.0' N 8°52.0'	355°18.4'	N 9°33.2'	53°01.2'	S 13°42.3'	66°06.0'	S 17°39.5'	298°13.7'	N 24°44.6'		
13	35°56.9'	14°49.2' N 8°52.9'	10°18.0'	N 9°34.4'	68°03.2'	S 13°42.2'	81°08.4'	S 17°39.5'	313°14.5'	N 24°44.7'		
14	50°59.4'	29°49.4' N 8°53.8'	25°17.5'	N 9°35.6'	83°05.3'	S 13°42.0'	96°10.7'	S 17°39.5'	328°15.3'	N 24°44.8'		
15	66°01.8'	44°49.5' N 8°54.7'	40°17.1'	N 9°36.7'	98°07.3'	S 13°41.9'	111°13.0'	S 17°39.4'	343°16.1'	N 24°44.8'		
16	81°04.3'	59°49.7' N 8°55.6'	55°16.7'	N 9°37.9'	113°09.3'	S 13°41.7'	126°15.3'	S 17°39.4'	358°17.0'	N 24°44.9'		
17	96°06.8'	74°49.8' N 8°56.5'	70°16.2'	N 9°39.1'	128°11.4'	S 13°41.6'	141°17.6'	S 17°39.3'	13°17.8'	N 24°45.0'		
18	111°09.2'	89°50.0' N 8°57.4'	85°15.8'	N 9°40.3'	143°13.4'	S 13°41.5'	156°19.9'	S 17°39.3'	28°18.6'	N 24°45.1'		
19	126°11.7'	104°50.2' N 8°58.3'	100°15.3'	N 9°41.4'	158°15.4'	S 13°41.3'	171°22.2'	S 17°39.3'	43°19.4'	N 24°45.1'		
20	141°14.2'	119°50.3' N 8°59.2'	115°14.9'	N 9°42.6'	173°17.5'	S 13°41.2'	186°24.5'	S 17°39.2'	58°20.2'	N 24°45.2'		
21	156°16.6'	134°50.5' N 9°00.2'	130°14.4'	N 9°43.8'	188°19.5'	S 13°41.0'	201°26.8'	S 17°39.2'	73°21.0'	N 24°45.3'		
22	171°19.1'	149°50.8' N 9°01.1'	145°14.0'	N 9°45.0'	203°21.5'	S 13°40.9'	216°29.1'	S 17°39.2'	88°21.8'	N 24°45.4'		
23	186°21.6'	164°50.6' N 9°02.0'	160°13.6'	N 9°46.1'	218°23.6'	S 13°40.8'	231°31.4'	S 17°39.1'	103°22.6'	N 24°45.4'		
		SD 15.9' d 0.9'	v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'			
Mer. pass.		12 h 0 m 45 s	12 h 19 m		8 h 28 m		7 h 36 m		16 h 7 m			

h	Moon				
	GHA	dec	v	d	HP
0	179°23.0'	N 4°35.0'	16.2'	12.7'	54.3'
1	193°58.2'	N 4°47.7'	16.2'	12.7'	54.3'
2	208°33.3'	N 5°00.4'	16.2'	12.7'	54.3'
3	223°08.5'	N 5°13.1'	16.2'	12.7'	54.3'
4	237°43.7'	N 5°25.8'	16.1'	12.6'	54.2'
5	252°18.8'	N 5°38.4'	16.1'	12.6'	54.2'
6	266°53.9'	N 5°51.0'	16.1'	12.6'	54.2'
7	281°29.1'	N 6°03.6'	16.1'	12.6'	54.2'
8	296°04.2'	N 6°16.1'	16.1'	12.5'	54.2'
9	310°39.3'	N 6°28.6'	16.1'	12.5'	54.2'
10	325°14.4'	N 6°41.1'	16.1'	12.5'	54.2'
11	339°49.5'	N 6°53.6'	16.1'	12.4'	54.2'
12	354°24.5'	N 7°06.0'	16.0'	12.4'	54.2'
13	8°59.6'	N 7°18.4'	16.0'	12.4'	54.2'
14	23°34.6'	N 7°30.8'	16.0'	12.3'	54.2'
15	38°09.6'	N 7°43.2'	16.0'	12.3'	54.1'
16	52°44.6'	N 7°55.5'	16.0'	12.3'	54.1'
17	67°19.6'	N 8°07.7'	16.0'	12.2'	54.1'
18	81°54.5'	N 8°20.0'	15.9'	12.2'	54.1'
19	96°29.5'	N 8°32.2'	15.9'	12.2'	54.1'
20	111°04.4'	N 8°44.4'	15.9'	12.1'	54.1'
21	125°39.3'	N 8°56.5'	15.9'	12.1'	54.1'
22	140°14.2'	N 9°08.6'	15.9'	12.1'	54.1'
23	154°49.0'	N 9°20.6'	15.8'	12.0'	54.1'
Mer. pass.	12 h 23 m	SD 14.8'	phase 0%		

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.0'	N 5°10.1'	Polaris	+2.0	315°52.7'	N 89°21.3'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.7'	S 60°28.4'	Canopus	-0.6	263°53.9'	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	201°24.0'	179°51.0'	N 9°02.9'	175°13.1'	N 9°47.3'	233°25.6'	S 13°40.6'	246°33.7'	S 17°39.1'	118°23.4'	N 24°45.5'							
1	216°26.5'	194°51.1'	N 9°03.8'	190°12.7'	N 9°48.5'	248°27.6'	S 13°40.5'	261°36.0'	S 17°39.0'	133°24.2'	N 24°45.6'							
2	231°28.9'	209°51.3'	N 9°04.7'	205°12.2'	N 9°49.7'	263°29.7'	S 13°40.3'	276°38.3'	S 17°39.0'	148°25.0'	N 24°45.6'							
3	246°31.4'	224°51.4'	N 9°05.6'	220°11.8'	N 9°50.8'	278°31.7'	S 13°40.2'	291°40.6'	S 17°39.0'	163°25.8'	N 24°45.7'							
4	261°33.9'	239°51.6'	N 9°06.5'	235°11.3'	N 9°52.0'	293°33.7'	S 13°40.0'	306°42.9'	S 17°38.9'	178°26.6'	N 24°45.8'							
5	276°36.3'	254°51.7'	N 9°07.4'	250°10.9'	N 9°53.2'	308°35.8'	S 13°39.9'	321°45.2'	S 17°38.9'	193°27.4'	N 24°45.8'							
6	291°38.8'	269°51.9'	N 9°08.3'	265°10.4'	N 9°54.3'	323°37.8'	S 13°39.8'	336°47.5'	S 17°38.8'	208°28.2'	N 24°45.9'							
7	306°41.3'	284°52.1'	N 9°09.2'	280°10.0'	N 9°55.5'	338°39.8'	S 13°39.6'	351°49.8'	S 17°38.8'	223°29.0'	N 24°46.0'							
8	321°43.7'	299°52.2'	N 9°10.1'	295°09.6'	N 9°56.7'	353°41.9'	S 13°39.5'	6°52.1'	S 17°38.8'	238°29.8'	N 24°46.0'							
9	336°46.2'	314°52.4'	N 9°11.0'	310°09.1'	N 9°57.9'	8°43.9'	S 13°39.3'	21°54.5'	S 17°38.7'	253°30.6'	N 24°46.1'							
10	351°48.7'	329°52.5'	N 9°11.9'	325°08.7'	N 9°59.0'	23°45.9'	S 13°39.2'	36°56.8'	S 17°38.7'	268°31.5'	N 24°46.2'							
11	6°51.1'	344°52.7'	N 9°12.8'	340°08.2'	N 10°00.2'	38°48.0'	S 13°39.0'	51°59.1'	S 17°38.7'	283°32.3'	N 24°46.3'							
12	21°53.6'	359°52.8'	N 9°13.7'	355°07.8'	N 10°01.4'	53°50.0'	S 13°38.9'	67°01.4'	S 17°38.6'	298°33.1'	N 24°46.3'							
13	36°56.1'	14°53.0'	N 9°14.6'	10°07.3'	N 10°02.5'	68°52.0'	S 13°38.8'	82°03.7'	S 17°38.6'	313°33.9'	N 24°46.4'							
14	51°58.5'	29°53.1'	N 9°15.6'	25°06.9'	N 10°03.7'	83°54.1'	S 13°38.6'	97°06.0'	S 17°38.5'	328°34.7'	N 24°46.5'							
15	67°01.0'	44°53.3'	N 9°16.5'	40°06.4'	N 10°04.9'	98°56.1'	S 13°38.5'	112°08.3'	S 17°38.5'	343°35.5'	N 24°46.5'							
16	82°03.4'	59°53.5'	N 9°17.4'	55°06.0'	N 10°06.0'	113°58.1'	S 13°38.3'	127°10.6'	S 17°38.5'	358°36.3'	N 24°46.6'							
17	97°05.9'	74°53.6'	N 9°18.3'	70°05.5'	N 10°07.2'	129°00.2'	S 13°38.2'	142°12.9'	S 17°38.4'	13°37.1'	N 24°46.7'							
18	112°08.4'	89°53.8'	N 9°19.2'	85°05.1'	N 10°08.4'	144°02.2'	S 13°38.1'	157°15.2'	S 17°38.4'	28°37.9'	N 24°46.7'							
19	127°10.8'	104°53.9'	N 9°20.1'	100°04.6'	N 10°09.5'	159°04.2'	S 13°37.9'	172°17.5'	S 17°38.3'	43°38.7'	N 24°46.8'							
20	142°13.3'	119°54.1'	N 9°21.0'	115°04.2'	N 10°10.7'	174°06.3'	S 13°37.8'	187°19.8'	S 17°38.3'	58°39.5'	N 24°46.8'							
21	157°15.8'	134°54.2'	N 9°21.9'	130°03.7'	N 10°11.9'	189°08.3'	S 13°37.6'	202°22.1'	S 17°38.3'	73°40.3'	N 24°46.9'							
22	172°18.2'	149°54.4'	N 9°22.8'	145°03.3'	N 10°13.0'	204°10.4'	S 13°37.5'	217°24.5'	S 17°38.2'	88°41.1'	N 24°47.0'							
23	187°20.7'	164°54.5'	N 9°23.7'	160°02.8'	N 10°14.2'	219°12.4'	S 13°37.4'	232°26.8'	S 17°38.2'	103°41.9'	N 24°47.0'							
		SD 15.9' d 0.9'		v -0.4' d 1.2'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'								
Mer. pass.		12 h 0 m 30 s		12 h 20 m		8 h 25 m		7 h 33 m		16 h 6 m								

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Pollux	-Capella	-Mars	-Rigel	-Aldebaran	+Achernar
0	169°23.9'	N 9°32.7'	15.8'	12.0'	54.1'	116°59.5'	82°21.4'	80°50.9'	54°26.7'	50°44.1'	49°56.3'	36°55.3'	
1	183°58.7'	N 9°44.6'	15.8'	11.9'	54.1'	116°29.9'	81°53.4'	80°21.2'	54°00.2'	50°15.8'	49°34.6'	36°25.9'	
2	198°33.4'	N 9°56.6'	15.8'	11.9'	54.1'	116°00.2'	81°25.4'	79°51.4'	53°33.8'	49°47.5'	49°13.0'	35°56.5'	
3	213°08.2'	N 10°08.5'	15.7'	11.9'	54.1'	115°30.6'	80°57.4'	79°21.7'	53°07.4'	49°19.2'	48°51.5'	35°27.1'	
4	227°42.9'	N 10°20.3'	15.7'	11.8'	54.1'	115°00.9'	80°29.4'	78°52.0'	52°41.1'	48°51.0'	48°30.1'	34°57.7'	
5	242°17.6'	N 10°32.2'	15.7'	11.8'	54.0'	114°31.3'	80°01.4'	78°22.3'	52°14.8'	48°22.7'	48°08.8'	34°28.4'	
6	256°52.3'	N 10°43.9'	15.6'	11.7'	54.0'	114°01.6'	79°33.4'	77°52.6'	51°48.5'	47°54.5'	47°47.6'	33°59.0'	
7	271°26.9'	N 10°55.7'	15.6'	11.7'	54.0'	113°32.0'	79°05.5'	77°22.9'	51°22.4'	47°26.3'	47°26.6'	33°29.7'	
8	286°01.5'	N 11°07.3'	15.6'	11.6'	54.0'	113°02.4'	78°37.6'	76°53.2'	50°56.2'	46°58.0'	47°05.7'	33°00.4'	
9	300°36.1'	N 11°19.0'	15.6'	11.6'	54.0'	112°32.8'	78°09.6'	76°23.6'	50°30.2'	46°29.8'	46°44.9'	32°31.1'	
10	315°10.7'	N 11°30.6'	15.5'	11.5'	54.0'	112°03.2'	77°41.7'	75°53.9'	50°04.2'	46°01.6'	46°24.3'	32°01.8'	
11	329°45.2'	N 11°42.1'	15.5'	11.5'	54.0'	111°33.6'	77°13.8'	75°24.2'	49°38.2'	45°33.4'	46°03.7'	31°32.6'	
12	344°19.7'	N 11°53.6'	15.5'	11.4'	54.0'	111°04.0'	76°45.9'	74°54.6'	49°12.3'	45°05.2'	45°43.4'	31°03.4'	
13	358°54.1'	N 12°05.1'	15.4'	11.4'	54.0'	110°34.4'	76°18.0'	74°25.0'	48°46.5'	44°37.0'	45°23.1'	30°34.2'	70°06.1'
14	13°28.5'	N 12°16.5'	15.4'	11.3'	54.0'	110°04.8'	75°50.2'	73°55.3'	48°20.7'	44°08.8'	45°03.0'	30°05.0'	70°21.1'
15	28°02.9'	N 12°27.8'	15.4'	11.3'	54.0'	109°35.2'	75°22.3'	73°25.7'	47°55.0'	43°40.6'	44°43.0'	29°35.8'	70°36.2'
16	42°37.3'	N 12°39.1'	15.3'	11.2'	54.0'	109°05.7'	74°54.5'	72°56.1'	47°29.3'	43°12.5'	44°23.2'	29°06.7'	70°51.3'
17	57°11.6'	N 12°50.3'	15.3'	11.2'	54.0'	108°36.1'	74°26.7'	72°26.4'	47°03.7'	42°44.3'	44°03.6'	28°37.6'	71°06.6'
18	71°45.9'	N 13°01.5'	15.2'	11.1'	54.0'	108°06.6'	73°58.9'	71°56.8'	46°38.2'	42°16.1'	43°44.1'	28°08.5'	71°21.8'
19	86°20.1'	N 13°12.7'	15.2'	11.1'	54.0'	107°37.0'	73°31.1'	71°27.2'	46°12.8'	41°48.0'	43°24.7'	27°39.4'	71°37.2'
20	100°54.3'	N 13°23.8'	15.2'	11.0'	54.0'	107°07.5'	73°03.3'	70°57.6'	45°47.4'	41°19.8'	43°05.5'	27°10.4'	71°52.6'
21	115°28.5'	N 13°34.8'	15.1'	11.0'	54.0'	106°37.9'	72°35.6'	70°28.0'	45°22.1'	40°51.7'	42°46.5'	26°41.3'	72°08.0'
22	130°02.6'	N 13°45.8'	15.1'	10.9'	54.0'	106°08.4'	72°07.8'	69°58.5'	44°56.8'	40°23.6'	42°27.6'	26°12.3'	72°23.5'
23	144°36.7'	N 13°56.7'	15.1'	10.9'	54.0'	105°38.8'	71°40.1'	69°28.9'	44°31.7'	39°55.4'	42°08.9'	25°43.4'	72°39.1'
Mer. pass.		13 h 5 m SD 14.7'		phase 1%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.5'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°03.0'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°52.9'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

Wednesday 14 April 2021 UT1

h	Aries			Sun			Venus			Jupiter			Saturn			Mars		
	GHA	GHA	dec	GHA	dec		GHA	dec		GHA	dec		GHA	dec		GHA	dec	
0	202°23.2'	179°54.7'	N 9°24.6'	175°02.4'	N 10°15.3'		234°14.4'	S 13°37.2'		247°29.1'	S 17°38.2'		118°42.7'	N 24°47.1'				
1	217°25.6'	194°54.9'	N 9°25.5'	190°01.9'	N 10°16.5'		249°16.5'	S 13°37.1'		262°31.4'	S 17°38.1'		133°43.5'	N 24°47.2'				
2	232°28.1'	209°55.0'	N 9°26.4'	205°01.5'	N 10°17.7'		264°18.5'	S 13°36.9'		277°33.7'	S 17°38.1'		148°44.3'	N 24°47.2'				
3	247°30.6'	224°55.2'	N 9°27.3'	220°01.0'	N 10°18.8'		279°20.5'	S 13°36.8'		292°36.0'	S 17°38.0'		163°45.1'	N 24°47.3'				
4	262°33.0'	239°55.3'	N 9°28.2'	235°00.6'	N 10°20.0'		294°22.6'	S 13°36.7'		307°38.3'	S 17°38.0'		178°45.9'	N 24°47.4'				
5	277°35.5'	254°55.5'	N 9°29.1'	250°00.1'	N 10°21.2'		309°24.6'	S 13°36.5'		322°40.6'	S 17°38.0'		193°46.7'	N 24°47.4'				
6	292°37.9'	269°55.6'	N 9°30.0'	264°59.7'	N 10°22.3'		324°26.7'	S 13°36.4'		337°42.9'	S 17°37.9'		208°47.5'	N 24°47.5'				
7	307°40.4'	284°55.8'	N 9°30.9'	279°59.2'	N 10°23.5'		339°28.7'	S 13°36.2'		352°45.2'	S 17°37.9'		223°48.3'	N 24°47.5'				
8	322°42.9'	299°55.9'	N 9°31.8'	294°58.8'	N 10°24.6'		354°30.7'	S 13°36.1'		7°47.5'	S 17°37.9'		238°49.1'	N 24°47.6'				
9	337°45.3'	314°56.1'	N 9°32.7'	309°58.3'	N 10°25.8'		9°32.8'	S 13°36.0'		22°49.9'	S 17°37.8'		253°50.0'	N 24°47.7'				
10	352°47.8'	329°56.2'	N 9°33.6'	324°57.9'	N 10°27.0'		24°34.8'	S 13°35.8'		37°52.2'	S 17°37.8'		268°50.8'	N 24°47.7'				
11	7°50.3'	344°56.4'	N 9°34.5'	339°57.4'	N 10°28.1'		39°36.8'	S 13°35.7'		52°54.5'	S 17°37.7'		283°51.6'	N 24°47.8'				
12	22°52.7'	359°56.5'	N 9°35.4'	354°56.9'	N 10°29.3'		54°38.9'	S 13°35.5'		67°56.8'	S 17°37.7'		298°52.4'	N 24°47.8'				
13	37°55.2'	14°56.7'	N 9°36.3'	9°56.5'	N 10°30.4'		69°40.9'	S 13°35.4'		82°59.1'	S 17°37.7'		313°53.2'	N 24°47.9'				
14	52°57.7'	29°56.8'	N 9°37.2'	24°56.0'	N 10°31.6'		84°43.0'	S 13°35.3'		98°01.4'	S 17°37.6'		328°54.0'	N 24°48.0'				
15	68°00.1'	44°57.0'	N 9°38.0'	39°55.6'	N 10°32.7'		99°45.0'	S 13°35.1'		113°03.7'	S 17°37.6'		343°54.8'	N 24°48.0'				
16	83°02.6'	59°57.1'	N 9°38.9'	54°55.1'	N 10°33.9'		114°47.0'	S 13°35.0'		128°06.0'	S 17°37.6'		358°55.6'	N 24°48.1'				
17	98°05.0'	74°57.3'	N 9°39.8'	69°54.7'	N 10°35.1'		129°49.1'	S 13°34.8'		143°08.3'	S 17°37.5'		13°56.4'	N 24°48.1'				
18	113°07.5'	89°57.5'	N 9°40.7'	84°54.2'	N 10°36.2'		144°51.1'	S 13°34.7'		158°10.7'	S 17°37.5'		28°57.2'	N 24°48.2'				
19	128°10.0'	104°57.6'	N 9°41.6'	99°53.8'	N 10°37.4'		159°53.2'	S 13°34.6'		173°13.0'	S 17°37.4'		43°58.0'	N 24°48.3'				
20	143°12.4'	119°57.8'	N 9°42.5'	114°53.3'	N 10°38.5'		174°55.2'	S 13°34.4'		188°15.3'	S 17°37.4'		58°58.8'	N 24°48.3'				
21	158°14.9'	134°57.9'	N 9°43.4'	129°52.8'	N 10°39.7'		189°57.2'	S 13°34.3'		203°17.6'	S 17°37.4'		73°59.6'	N 24°48.4'				
22	173°17.4'	149°58.1'	N 9°44.3'	144°52.4'	N 10°40.8'		204°59.3'	S 13°34.1'		218°19.9'	S 17°37.3'		89°00.4'	N 24°48.4'				
23	188°19.8'	164°58.2'	N 9°45.2'	159°51.9'	N 10°42.0'		220°01.3'	S 13°34.0'		233°22.2'	S 17°37.3'		104°01.2'	N 24°48.5'				
		SD 15.9' d 0.9'		v -0.5' d 1.2'			v 2.0' d 0.1'			v 2.3' d 0.0'			v 0.8' d 0.1'					
Mer. pass.		12 h 0 m 15 s		12 h 20 m			8 h 22 m			7 h 29 m			16 h 4 m					

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Regulus	-Adhara	-Procyon	-Capella	-Rigel	-Mars	-Aldebaran	+Achernar
0	159°10.8'	N 14°07.6'	15.0'	10.8'	54.0'	105°09.3'	73°28.9'	71°12.4'	44°06.6'	41°50.4'	39°27.3'	25°14.5'	72°54.7'
1	173°44.8'	N 14°18.4'	15.0'	10.8'	54.0'	104°39.8'	73°13.2'	70°44.7'	43°41.6'	41°32.1'	38°59.2'	24°45.5'	73°10.4'
2	188°18.8'	N 14°29.2'	14.9'	10.7'	54.0'	104°10.3'	72°57.6'	70°17.0'	43°16.7'	41°13.9'	38°31.1'	24°16.7'	73°26.1'
3	202°52.7'	N 14°39.8'	14.9'	10.6'	53.9'	103°40.8'	72°42.1'	69°49.3'	42°51.8'	40°55.9'	38°03.0'	23°47.8'	73°41.9'
4	217°26.6'	N 14°50.5'	14.8'	10.6'	53.9'	103°11.3'	72°26.6'	69°21.7'	42°27.1'	40°38.2'	37°34.9'	23°19.0'	73°57.8'
5	232°00.4'	N 15°01.1'	14.8'	10.5'	53.9'	102°41.8'	72°11.2'	68°54.1'	42°02.4'	40°20.6'	37°06.8'	22°50.3'	74°13.6'
6	246°34.2'	N 15°11.6'	14.8'	10.5'	53.9'	102°12.3'	71°55.9'	68°26.4'	41°37.8'	40°03.2'	36°38.7'	22°21.6'	74°29.6'
7	261°08.0'	N 15°22.0'	14.7'	10.4'	53.9'	101°42.8'	71°40.6'	67°58.8'	41°13.4'	39°46.0'	36°10.6'	21°52.9'	74°45.6'
8	275°41.7'	N 15°32.4'	14.7'	10.3'	53.9'	101°13.3'	71°25.4'	67°31.3'	40°49.0'	39°29.0'	35°42.5'	21°24.2'	75°01.6'
9	290°15.4'	N 15°42.7'	14.6'	10.3'	53.9'	100°43.8'	71°10.2'	67°03.7'	40°24.7'	39°12.2'	35°14.4'	20°55.6'	75°17.7'
10	304°49.0'	N 15°53.0'	14.6'	10.2'	53.9'	100°14.3'	70°55.2'	66°36.2'	40°00.5'	38°55.7'	34°46.3'	20°27.1'	75°33.8'
11	319°22.6'	N 16°03.2'	14.5'	10.1'	53.9'	99°44.8'		66°08.6'	39°36.4'	38°39.4'	34°18.2'	19°58.6'	75°49.9'
12	333°56.1'	N 16°13.3'	14.5'	10.1'	53.9'	99°15.3'		65°41.1'	39°12.4'	38°23.2'	33°50.2'	19°30.1'	76°06.2'
13	348°29.6'	N 16°23.4'	14.4'	10.0'	53.9'	98°45.9'		65°13.6'	38°48.6'	38°07.4'	33°22.1'	19°01.8'	76°22.4'
14	3°03.1'	N 16°33.4'	14.4'	9.9'	53.9'	98°16.4'		64°46.2'	38°24.8'	37°51.7'	32°54.0'	18°33.4'	76°38.7'
15	17°36.5'	N 16°43.3'	14.4'	9.9'	53.9'	97°46.9'		64°18.7'	38°01.2'	37°36.3'	32°26.0'	18°05.2'	76°55.0'
16	32°09.8'	N 16°53.2'	14.3'	9.8'	53.9'	97°17.4'		63°51.3'	37°37.7'		31°57.9'	17°37.0'	77°11.4'
17	46°43.1'	N 17°03.0'	14.3'	9.7'	53.9'	96°48.0'		63°23.9'	37°14.3'		31°29.8'	17°08.9'	77°27.8'
18	61°16.4'	N 17°12.7'	14.2'	9.7'	53.9'	96°18.5'		62°56.5'	36°51.0'		31°01.8'	16°40.9'	77°44.3'
19	75°49.6'	N 17°22.4'	14.2'	9.6'	53.9'	95°49.1'		62°29.1'	36°27.9'		30°33.7'	16°13.0'	78°00.7'
20	90°22.7'	N 17°31.9'	14.1'	9.5'	53.9'	95°19.6'		62°01.8'	36°04.9'		30°05.7'	15°45.1'	78°17.3'
21	104°55.8'	N 17°41.4'	14.1'	9.4'	53.9'	94°50.1'		61°34.4'	35°42.0'		29°37.6'	15°17.4'	78°33.8'
22	119°28.9'	N 17°50.9'	14.0'	9.4'	53.9'	94°20.7'		61°07.1'	35°19.3'		29°09.6'	14°49.8'	78°50.4'
23	134°01.9'	N 18°00.2'	14.0'	9.3'	53.9'	93°51.2'		60°39.9'	34°56.8'		28°41.5'	14°22.3'	79°07.0'
Mer. pass.		13 h 47 m SD 14.7'		phase 3%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.0'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.8'	S 60°55.2'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°53.9'	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	203°22.3'	179°58.4'	N 9°46.1'	174°51.5'	N 10°43.1'	235°03.4'	S 13°33.9'	248°24.5'	S 17°37.3'	119°02.0'	N 24°48.5'			
1	218°24.8'	194°58.5'	N 9°47.0'	189°51.0'	N 10°44.3'	250°05.4'	S 13°33.7'	263°26.8'	S 17°37.2'	134°02.8'	N 24°48.6'			
2	233°27.2'	209°58.7'	N 9°47.9'	204°50.5'	N 10°45.4'	265°07.4'	S 13°33.6'	278°29.1'	S 17°37.2'	149°03.6'	N 24°48.7'			
3	248°29.7'	224°58.8'	N 9°48.8'	219°50.1'	N 10°46.6'	280°09.5'	S 13°33.4'	293°31.5'	S 17°37.1'	164°04.4'	N 24°48.7'			
4	263°32.2'	239°59.0'	N 9°49.7'	234°49.6'	N 10°47.7'	295°11.5'	S 13°33.3'	308°33.8'	S 17°37.1'	179°05.2'	N 24°48.8'			
5	278°34.6'	254°59.1'	N 9°50.6'	249°49.2'	N 10°48.9'	310°13.6'	S 13°33.2'	323°36.1'	S 17°37.1'	194°06.0'	N 24°48.8'			
6	293°37.1'	269°59.3'	N 9°51.5'	264°48.7'	N 10°50.0'	325°15.6'	S 13°33.0'	338°38.4'	S 17°37.0'	209°06.8'	N 24°48.9'			
7	308°39.5'	284°59.4'	N 9°52.4'	279°48.2'	N 10°51.2'	340°17.7'	S 13°32.9'	353°40.7'	S 17°37.0'	224°07.6'	N 24°48.9'			
8	323°42.0'	299°59.6'	N 9°53.2'	294°47.8'	N 10°52.3'	355°19.7'	S 13°32.7'	8°43.0'	S 17°37.0'	239°08.4'	N 24°49.0'			
9	338°44.5'	314°59.7'	N 9°54.1'	309°47.3'	N 10°53.5'	10°21.7'	S 13°32.6'	23°45.3'	S 17°36.9'	254°09.2'	N 24°49.0'			
10	353°46.9'	329°59.9'	N 9°55.0'	324°46.9'	N 10°54.6'	25°23.8'	S 13°32.5'	38°47.7'	S 17°36.9'	269°10.0'	N 24°49.1'			
11	8°49.4'	345°00.0'	N 9°55.9'	339°46.4'	N 10°55.8'	40°25.8'	S 13°32.3'	53°50.0'	S 17°36.9'	284°10.8'	N 24°49.1'			
12	23°51.9'	0°00.2'	N 9°56.8'	354°45.9'	N 10°56.9'	55°27.9'	S 13°32.2'	68°52.3'	S 17°36.8'	299°11.6'	N 24°49.2'			
13	38°54.3'	15°00.3'	N 9°57.7'	9°45.5'	N 10°58.1'	70°29.9'	S 13°32.0'	83°54.6'	S 17°36.8'	314°12.4'	N 24°49.2'			
14	53°56.8'	30°00.5'	N 9°58.6'	24°45.0'	N 10°59.2'	85°32.0'	S 13°31.9'	98°56.9'	S 17°36.7'	329°13.2'	N 24°49.3'			
15	68°59.3'	45°00.6'	N 9°59.5'	39°44.5'	N 11°00.4'	100°34.0'	S 13°31.8'	113°59.2'	S 17°36.7'	344°14.0'	N 24°49.4'			
16	84°01.7'	60°00.8'	N 10°00.4'	54°44.1'	N 11°01.5'	115°36.0'	S 13°31.6'	129°01.5'	S 17°36.7'	359°14.8'	N 24°49.4'			
17	99°04.2'	75°00.9'	N 10°01.3'	69°43.6'	N 11°02.7'	130°38.1'	S 13°31.5'	144°03.9'	S 17°36.6'	14°15.6'	N 24°49.5'			
18	114°06.7'	90°01.0'	N 10°02.2'	84°43.2'	N 11°03.8'	145°40.1'	S 13°31.4'	159°06.2'	S 17°36.6'	29°16.4'	N 24°49.5'			
19	129°09.1'	105°01.2'	N 10°03.0'	99°42.7'	N 11°05.0'	160°42.2'	S 13°31.2'	174°08.5'	S 17°36.6'	44°17.2'	N 24°49.6'			
20	144°11.6'	120°01.3'	N 10°03.9'	114°42.2'	N 11°06.1'	175°44.2'	S 13°31.1'	189°10.8'	S 17°36.5'	59°18.0'	N 24°49.6'			
21	159°14.0'	135°01.5'	N 10°04.8'	129°41.8'	N 11°07.2'	190°46.3'	S 13°30.9'	204°13.1'	S 17°36.5'	74°18.8'	N 24°49.7'			
22	174°16.5'	150°01.6'	N 10°05.7'	144°41.3'	N 11°08.4'	205°48.3'	S 13°30.8'	219°15.4'	S 17°36.5'	89°19.6'	N 24°49.7'			
23	189°19.0'	165°01.8'	N 10°06.6'	159°40.8'	N 11°09.5'	220°50.4'	S 13°30.7'	234°17.7'	S 17°36.4'	104°20.4'	N 24°49.8'			
		SD 15.9' d 0.9'		v -0.5' d 1.1'		v 2.0' d 0.1'		v 2.3' d 0.0'		v 0.8' d 0.1'				
Mer. pass.		12 h 0 m 0 s		12 h 21 m		8 h 19 m		7 h 25 m		16 h 3 m				

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Regulus	-Procyon	-Betelgeuse	-Capella	-Mars	-Aldebaran	+Sun	+Achernar
0	148°34.9'	N 18°09.5'	13.9'	9.2'	53.9'	93°21.8'	60°12.6'	35°02.5'	34°34.4'	28°13.5'	13°55.0'		79°23.7'
1	163°07.8'	N 18°18.7'	13.9'	9.1'	53.9'	92°52.3'	59°45.3'	34°37.3'	34°12.1'	27°45.4'	13°27.8'		79°40.4'
2	177°40.6'	N 18°27.9'	13.8'	9.1'	53.9'	92°22.9'	59°18.1'	34°12.3'	33°50.0'	27°17.4'	13°00.8'		79°57.1'
3	192°13.4'	N 18°36.9'	13.7'	9.0'	53.9'	91°53.4'	58°50.9'	33°47.4'	33°28.1'	26°49.4'	12°34.0'		80°13.9'
4	206°46.2'	N 18°45.9'	13.7'	8.9'	53.9'	91°24.0'	58°23.8'	33°22.7'	33°06.4'	26°21.3'	12°07.3'		80°30.7'
5	221°18.9'	N 18°54.8'	13.6'	8.8'	53.9'	90°54.5'	57°56.6'	32°58.0'	32°44.8'	25°53.3'	11°40.9'		80°47.5'
6	235°51.5'	N 19°03.7'	13.6'	8.7'	53.9'	90°25.1'	57°29.5'	32°33.4'	32°23.4'	25°25.2'	11°14.8'		81°04.3'
7	250°24.1'	N 19°12.4'	13.5'	8.7'	53.9'	89°55.6'	57°02.4'	32°09.0'	32°02.3'	24°57.2'	10°49.0'		81°21.2'
8	264°56.6'	N 19°21.1'	13.5'	8.6'	53.9'	89°26.2'	56°35.4'	31°44.7'	31°41.3'	24°29.1'	10°23.5'		81°38.1'
9	279°29.1'	N 19°29.7'	13.4'	8.5'	53.9'	88°56.7'	56°08.3'	31°20.5'	31°20.5'	24°01.1'	9°58.3'		81°55.0'
10	294°01.6'	N 19°38.2'	13.4'	8.4'	54.0'	88°27.2'	55°41.3'	30°56.5'	30°59.9'	23°33.1'	9°33.6'		82°11.9'
11	308°33.9'	N 19°46.6'	13.3'	8.3'	54.0'	87°57.8'	55°14.3'	30°32.6'	30°39.6'	23°05.0'	9°09.3'		82°28.9'
12	323°06.3'	N 19°54.9'	13.3'	8.3'	54.0'	87°28.3'	54°47.4'	30°08.9'	30°19.5'	22°37.0'	8°45.6'		82°45.9'
13	337°38.5'	N 20°03.2'	13.2'	8.2'	54.0'	86°58.9'	54°20.4'	29°45.3'	29°59.6'	22°08.9'	8°22.4'		83°02.9'
14	352°10.7'	N 20°11.3'	13.2'	8.1'	54.0'	86°29.4'	53°53.5'	29°21.9'	29°39.9'	21°40.9'			83°19.9'
15	6°42.9'	N 20°19.4'	13.1'	8.0'	54.0'	85°60.0'	53°26.7'	28°58.7'	29°20.5'	21°12.8'			83°37.0'
16	21°15.0'	N 20°27.4'	13.1'	7.9'	54.0'	85°30.5'	52°59.8'	28°35.6'	29°01.4'	20°44.8'			83°54.1'
17	35°47.1'	N 20°35.3'	13.0'	7.8'	54.0'	85°01.0'	52°33.0'	28°12.7'	28°42.5'	20°16.7'			84°11.2'
18	50°19.1'	N 20°43.1'	12.9'	7.7'	54.0'	84°31.6'	52°06.3'	27°50.0'	28°23.9'	19°48.7'			84°28.3'
19	64°51.0'	N 20°50.9'	12.9'	7.6'	54.0'	84°02.1'	51°39.5'	27°27.5'	28°05.6'	19°20.6'	40°04.2'		84°45.4'
20	79°22.9'	N 20°58.5'	12.8'	7.6'	54.0'	83°32.6'	51°12.8'	27°05.3'	27°47.6'	18°52.5'	40°31.2'		85°02.6'
21	93°54.7'	N 21°06.1'	12.8'	7.5'	54.0'	83°03.2'	50°46.1'	26°43.2'	27°29.9'	18°24.5'	40°58.2'		85°19.7'
22	108°26.5'	N 21°13.5'	12.7'	7.4'	54.0'	82°33.7'	50°19.5'	26°21.3'	27°12.5'	17°56.4'	41°25.1'		85°36.9'
23	122°58.2'	N 21°20.9'	12.7'	7.3'	54.0'	82°04.2'	49°52.9'	25°59.7'	26°55.4'	17°28.3'	41°52.1'		85°54.1'
Mer. pass.		14 h 32 m SD 14.7'		phase 7%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°28.0'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.1'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.2'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°53.9'	S 52°42.7'				

Friday 16 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	204°21.4'	180°01.9'	N 10°07.5'	174°40.4'	N 11°10.7'		235°52.4'	S 13°30.5'	249°20.1'	S 17°36.4'	119°21.2'	N 24°49.8'		
1	219°23.9'	195°02.1'	N 10°08.4'	189°39.9'	N 11°11.8'		250°54.5'	S 13°30.4'	264°22.4'	S 17°36.3'	134°22.0'	N 24°49.9'		
2	234°26.4'	210°02.2'	N 10°09.3'	204°39.4'	N 11°13.0'		265°56.5'	S 13°30.2'	279°24.7'	S 17°36.3'	149°22.8'	N 24°49.9'		
3	249°28.8'	225°02.4'	N 10°10.1'	219°39.0'	N 11°14.1'		280°58.5'	S 13°30.1'	294°27.0'	S 17°36.3'	164°23.6'	N 24°50.0'		
4	264°31.3'	240°02.5'	N 10°11.0'	234°38.5'	N 11°15.2'		296°00.6'	S 13°30.0'	309°29.3'	S 17°36.2'	179°24.4'	N 24°50.0'		
5	279°33.8'	255°02.7'	N 10°11.9'	249°38.0'	N 11°16.4'		311°02.6'	S 13°29.8'	324°31.6'	S 17°36.2'	194°25.2'	N 24°50.1'		
6	294°36.2'	270°02.8'	N 10°12.8'	264°37.6'	N 11°17.5'		326°04.7'	S 13°29.7'	339°34.0'	S 17°36.2'	209°26.0'	N 24°50.1'		
7	309°38.7'	285°03.0'	N 10°13.7'	279°37.1'	N 11°18.7'		341°06.7'	S 13°29.6'	354°36.3'	S 17°36.1'	224°26.8'	N 24°50.1'		
8	324°41.1'	300°03.1'	N 10°14.6'	294°36.6'	N 11°19.8'		356°08.8'	S 13°29.4'	9°38.6'	S 17°36.1'	239°27.6'	N 24°50.2'		
9	339°43.6'	315°03.3'	N 10°15.5'	309°36.1'	N 11°20.9'		11°10.8'	S 13°29.3'	24°40.9'	S 17°36.1'	254°28.4'	N 24°50.2'		
10	354°46.1'	330°03.4'	N 10°16.3'	324°35.7'	N 11°22.1'		26°12.9'	S 13°29.1'	39°43.2'	S 17°36.0'	269°29.2'	N 24°50.3'		
11	9°48.5'	345°03.5'	N 10°17.2'	339°35.2'	N 11°23.2'		41°14.9'	S 13°29.0'	54°45.5'	S 17°36.0'	284°30.0'	N 24°50.3'		
12	24°51.0'	0°03.7'	N 10°18.1'	354°34.7'	N 11°24.4'		56°17.0'	S 13°28.9'	69°47.9'	S 17°36.0'	299°30.8'	N 24°50.4'		
13	39°53.5'	15°03.8'	N 10°19.0'	9°34.3'	N 11°25.5'		71°19.0'	S 13°28.7'	84°50.2'	S 17°35.9'	314°31.6'	N 24°50.4'		
14	54°55.9'	30°04.0'	N 10°19.9'	24°33.8'	N 11°26.6'		86°21.1'	S 13°28.6'	99°52.5'	S 17°35.9'	329°32.4'	N 24°50.5'		
15	69°58.4'	45°04.1'	N 10°20.8'	39°33.3'	N 11°27.8'		101°23.1'	S 13°28.5'	114°54.8'	S 17°35.8'	344°33.2'	N 24°50.5'		
16	85°00.9'	60°04.3'	N 10°21.6'	54°32.8'	N 11°28.9'		116°25.2'	S 13°28.3'	129°57.1'	S 17°35.8'	359°34.0'	N 24°50.6'		
17	100°03.3'	75°04.4'	N 10°22.5'	69°32.4'	N 11°30.0'		131°27.2'	S 13°28.2'	144°59.4'	S 17°35.8'	14°34.8'	N 24°50.6'		
18	115°05.8'	90°04.6'	N 10°23.4'	84°31.9'	N 11°31.2'		146°29.3'	S 13°28.0'	160°01.8'	S 17°35.7'	29°35.6'	N 24°50.6'		
19	130°08.3'	105°04.7'	N 10°24.3'	99°31.4'	N 11°32.3'		161°31.3'	S 13°27.9'	175°04.1'	S 17°35.7'	44°36.4'	N 24°50.7'		
20	145°10.7'	120°04.8'	N 10°25.2'	114°31.0'	N 11°33.4'		176°33.4'	S 13°27.8'	190°06.4'	S 17°35.7'	59°37.2'	N 24°50.7'		
21	160°13.2'	135°05.0'	N 10°26.0'	129°30.5'	N 11°34.6'		191°35.4'	S 13°27.6'	205°08.7'	S 17°35.6'	74°38.0'	N 24°50.8'		
22	175°15.6'	150°05.1'	N 10°26.9'	144°30.0'	N 11°35.7'		206°37.5'	S 13°27.5'	220°11.0'	S 17°35.6'	89°38.8'	N 24°50.8'		
23	190°18.1'	165°05.3'	N 10°27.8'	159°29.5'	N 11°36.8'		221°39.5'	S 13°27.4'	235°13.4'	S 17°35.6'	104°39.6'	N 24°50.9'		
		SD 15.9'	d 0.9'	v -0.5'	d 1.1'		v 2.0'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.0'		
Mer. pass.		11 h 59 m 46 s		12 h 22 m			8 h 15 m		7 h 22 m		16 h 2 m			

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Capella	-Betelgeuse	-Mars	-Aldebaran	+Sun	+Achernar
0	137°29.9'	N 21°28.2'	12.6'	7.2'	54.0'		81°34.7'	26°38.7'	25°38.3'	17°00.2'		42°19.1'	86°11.3'
1	152°01.5'	N 21°35.4'	12.6'	7.1'	54.0'		81°05.2'	26°22.3'	25°17.2'	16°32.2'		42°46.2'	86°28.6'
2	166°33.1'	N 21°42.5'	12.5'	7.0'	54.0'		80°35.7'	26°06.3'	24°56.4'	16°04.1'		43°13.2'	86°45.8'
3	181°04.6'	N 21°49.5'	12.4'	6.9'	54.0'		80°06.2'	25°50.6'	24°35.8'	15°36.0'		43°40.2'	87°03.1'
4	195°36.0'	N 21°56.4'	12.4'	6.8'	54.0'		79°36.7'		24°15.5'	15°07.9'		44°07.2'	87°20.3'
5	210°07.4'	N 22°03.2'	12.3'	6.7'	54.1'		79°07.2'		23°55.5'	14°39.8'		44°34.2'	87°37.6'
6	224°38.7'	N 22°09.9'	12.3'	6.6'	54.1'		78°37.7'		23°35.9'	14°11.7'		45°01.3'	87°54.9'
7	239°10.0'	N 22°16.5'	12.2'	6.5'	54.1'		78°08.2'		23°16.5'	13°43.6'		45°28.3'	88°12.2'
8	253°41.2'	N 22°23.0'	12.2'	6.4'	54.1'		77°38.7'		22°57.5'	13°15.5'		45°55.4'	
9	268°12.4'	N 22°29.4'	12.1'	6.3'	54.1'		77°09.1'		22°38.9'	12°47.3'		46°22.5'	
10	282°43.5'	N 22°35.7'	12.1'	6.2'	54.1'		76°39.6'		22°20.6'	12°19.2'		46°49.5'	
11	297°14.6'	N 22°42.0'	12.0'	6.1'	54.1'		76°10.1'		22°02.7'	11°51.1'		47°16.6'	
12	311°45.6'	N 22°48.1'	12.0'	6.0'	54.1'		75°40.5'		21°45.2'	11°22.9'		47°43.7'	
13	326°16.5'	N 22°54.1'	11.9'	5.9'	54.1'		75°11.0'		21°28.1'	10°54.8'		48°10.8'	
14	340°47.4'	N 23°00.0'	11.8'	5.8'	54.1'		74°41.4'		21°11.5'	10°26.6'		48°37.9'	
15	355°18.3'	N 23°05.8'	11.8'	5.7'	54.1'		74°11.8'		20°55.3'	9°58.4'	8°16.8'	49°05.1'	
16	9°49.1'	N 23°11.5'	11.7'	5.6'	54.1'		73°42.3'		20°39.6'	9°30.3'	8°39.8'	49°32.2'	
17	24°19.8'	N 23°17.1'	11.7'	5.5'	54.2'		73°12.7'			9°02.1'	9°03.5'	49°59.3'	
18	38°50.5'	N 23°22.6'	11.6'	5.4'	54.2'		72°43.1'			8°33.9'	9°27.8'	50°26.5'	
19	53°21.1'	N 23°28.0'	11.6'	5.3'	54.2'		72°13.5'			8°05.7'	9°52.6'	50°53.6'	
20	67°51.7'	N 23°33.3'	11.5'	5.2'	54.2'		71°43.9'			7°37.5'	10°17.8'	51°20.8'	
21	82°22.2'	N 23°38.5'	11.5'	5.1'	54.2'	119°40.3'	71°14.3'			7°09.3'	10°43.4'	51°48.0'	
22	96°52.7'	N 23°43.6'	11.4'	5.0'	54.2'	119°14.8'	70°44.6'			6°41.1'	11°09.3'	52°15.2'	
23	111°23.1'	N 23°48.5'	11.4'	4.9'	54.2'	118°49.4'	70°15.0'			6°12.8'	11°35.6'	52°42.4'	
Mer. pass.		15 h 19 m SD 14.7'	phase 13%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.2'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.1'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.3'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°53.9'	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	205°20.6'	180°05.4'	N 10°28.7'	174°29.1'	N 11°38.0'		236°41.6'	S 13°27.2'		250°15.7'	S 17°35.5'		119°40.4'	N 24°50.9'				
1	220°23.0'	195°05.6'	N 10°29.6'	189°28.6'	N 11°39.1'		251°43.6'	S 13°27.1'		265°18.0'	S 17°35.5'		134°41.2'	N 24°50.9'				
2	235°25.5'	210°05.7'	N 10°30.4'	204°28.1'	N 11°40.2'		266°45.7'	S 13°26.9'		280°20.3'	S 17°35.5'		149°42.0'	N 24°51.0'				
3	250°28.0'	225°05.8'	N 10°31.3'	219°27.6'	N 11°41.3'		281°47.7'	S 13°26.8'		295°22.6'	S 17°35.4'		164°42.8'	N 24°51.0'				
4	265°30.4'	240°06.0'	N 10°32.2'	234°27.2'	N 11°42.5'		296°49.8'	S 13°26.7'		310°25.0'	S 17°35.4'		179°43.6'	N 24°51.1'				
5	280°32.9'	255°06.1'	N 10°33.1'	249°26.7'	N 11°43.6'		311°51.8'	S 13°26.5'		325°27.3'	S 17°35.4'		194°44.4'	N 24°51.1'				
6	295°35.4'	270°06.3'	N 10°34.0'	264°26.2'	N 11°44.7'		326°53.9'	S 13°26.4'		340°29.6'	S 17°35.3'		209°45.2'	N 24°51.2'				
7	310°37.8'	285°06.4'	N 10°34.8'	279°25.7'	N 11°45.9'		341°55.9'	S 13°26.3'		355°31.9'	S 17°35.3'		224°46.0'	N 24°51.2'				
8	325°40.3'	300°06.6'	N 10°35.7'	294°25.2'	N 11°47.0'		356°58.0'	S 13°26.1'		10°34.2'	S 17°35.3'		239°46.8'	N 24°51.2'				
9	340°42.8'	315°06.7'	N 10°36.6'	309°24.8'	N 11°48.1'		12°00.0'	S 13°26.0'		25°36.6'	S 17°35.2'		254°47.6'	N 24°51.3'				
10	355°45.2'	330°06.8'	N 10°37.5'	324°24.3'	N 11°49.2'		27°02.1'	S 13°25.9'		40°38.9'	S 17°35.2'		269°48.4'	N 24°51.3'				
11	10°47.7'	345°07.0'	N 10°38.3'	339°23.8'	N 11°50.4'		42°04.1'	S 13°25.7'		55°41.2'	S 17°35.1'		284°49.2'	N 24°51.4'				
12	25°50.1'	0°07.1'	N 10°39.2'	354°23.3'	N 11°51.5'		57°06.2'	S 13°25.6'		70°43.5'	S 17°35.1'		299°50.0'	N 24°51.4'				
13	40°52.6'	15°07.3'	N 10°40.1'	9°22.8'	N 11°52.6'		72°08.2'	S 13°25.4'		85°45.8'	S 17°35.1'		314°50.8'	N 24°51.4'				
14	55°55.1'	30°07.4'	N 10°41.0'	24°22.4'	N 11°53.7'		87°10.3'	S 13°25.3'		100°48.2'	S 17°35.0'		329°51.6'	N 24°51.5'				
15	70°57.5'	45°07.6'	N 10°41.8'	39°21.9'	N 11°54.9'		102°12.3'	S 13°25.2'		115°50.5'	S 17°35.0'		344°52.4'	N 24°51.5'				
16	86°00.0'	60°07.7'	N 10°42.7'	54°21.4'	N 11°56.0'		117°14.4'	S 13°25.0'		130°52.8'	S 17°35.0'		359°53.2'	N 24°51.5'				
17	101°02.5'	75°07.8'	N 10°43.6'	69°20.9'	N 11°57.1'		132°16.4'	S 13°24.9'		145°55.1'	S 17°34.9'		14°54.0'	N 24°51.6'				
18	116°04.9'	90°08.0'	N 10°44.5'	84°20.4'	N 11°58.2'		147°18.5'	S 13°24.8'		160°57.5'	S 17°34.9'		29°54.8'	N 24°51.6'				
19	131°07.4'	105°08.1'	N 10°45.3'	99°20.0'	N 11°59.4'		162°20.5'	S 13°24.6'		175°59.8'	S 17°34.9'		44°55.6'	N 24°51.7'				
20	146°09.9'	120°08.3'	N 10°46.2'	114°19.5'	N 12°00.5'		177°22.6'	S 13°24.5'		191°02.1'	S 17°34.8'		59°56.4'	N 24°51.7'				
21	161°12.3'	135°08.4'	N 10°47.1'	129°19.0'	N 12°01.6'		192°24.7'	S 13°24.4'		206°04.4'	S 17°34.8'		74°57.2'	N 24°51.7'				
22	176°14.8'	150°08.5'	N 10°48.0'	144°18.5'	N 12°02.7'		207°26.7'	S 13°24.2'		221°06.7'	S 17°34.8'		89°58.0'	N 24°51.8'				
23	191°17.3'	165°08.7'	N 10°48.8'	159°18.0'	N 12°03.8'		222°28.8'	S 13°24.1'		236°09.1'	S 17°34.7'		104°58.8'	N 24°51.8'				
		SD 15.9' d 0.9'		v -0.5' d 1.1'			v 2.1' d 0.1'			v 2.3' d 0.0'			v 0.8' d 0.0'					
Mer. pass.		11 h 59 m 32 s		12 h 22 m			8 h 12 m			7 h 18 m			16 h 0 m					

h	Moon					Lunar distance								
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Procyon	-Pollux	-Mars	+Aldebaran	+Sun	
0	125°53.5'	N 23°53.4'	11.3'	4.7'	54.2'		118°23.9'	69°45.4'	39°03.7'	33°34.4'	5°44.6'		12°02.1'	53°09.6'
1	140°23.8'	N 23°58.1'	11.3'	4.6'	54.2'		117°58.3'	69°15.7'	38°38.6'	33°04.8'	5°16.3'		12°28.9'	53°36.8'
2	154°54.1'	N 24°02.8'	11.2'	4.5'	54.3'		117°32.7'	68°46.0'	38°13.5'	32°35.1'	4°48.1'		12°55.8'	54°04.1'
3	169°24.3'	N 24°07.3'	11.2'	4.4'	54.3'		117°07.1'	68°16.4'	37°48.6'	32°05.5'	4°19.8'		13°23.0'	54°31.3'
4	183°54.5'	N 24°11.7'	11.1'	4.3'	54.3'		116°41.4'	67°46.7'	37°23.7'	31°35.9'	3°51.5'		13°50.4'	54°58.6'
5	198°24.6'	N 24°16.0'	11.1'	4.2'	54.3'		116°15.7'	67°17.0'	36°58.9'	31°06.3'	3°23.3'		14°18.0'	55°25.8'
6	212°54.6'	N 24°20.2'	11.0'	4.1'	54.3'		115°49.9'	66°47.3'	36°34.2'	30°36.6'	2°55.0'		14°45.7'	55°53.1'
7	227°24.7'	N 24°24.3'	11.0'	4.0'	54.3'		115°24.1'	66°17.6'	36°09.6'	30°07.0'	2°26.7'		15°13.5'	56°20.4'
8	241°54.6'	N 24°28.3'	10.9'	3.9'	54.3'	119°50.2'	114°58.3'	65°47.8'	35°45.2'	29°37.3'	1°58.4'		15°41.5'	56°47.7'
9	256°24.6'	N 24°32.1'	10.9'	3.7'	54.3'	119°20.6'	114°32.4'	65°18.1'	35°20.8'	29°07.6'	1°30.1'		16°09.6'	57°15.1'
10	270°54.4'	N 24°35.9'	10.8'	3.6'	54.4'	118°50.9'	114°06.4'	64°48.3'	34°56.5'	28°38.0'	1°01.9'		16°37.8'	57°42.4'
11	285°24.3'	N 24°39.5'	10.8'	3.5'	54.4'	118°21.2'	113°40.5'	64°18.6'	34°32.4'	28°08.3'			17°06.2'	58°09.8'
12	299°54.1'	N 24°43.0'	10.7'	3.4'	54.4'	117°51.5'	113°14.5'	63°48.8'	34°08.4'	27°38.6'			17°34.6'	58°37.2'
13	314°23.8'	N 24°46.4'	10.7'	3.3'	54.4'	117°21.8'	112°48.4'	63°19.0'	33°44.5'	27°08.9'			18°03.1'	59°04.5'
14	328°53.5'	N 24°49.6'	10.7'	3.2'	54.4'	116°52.1'	112°22.3'	62°49.2'	33°20.7'	26°39.2'	0°52.8'		18°31.7'	59°31.9'
15	343°23.2'	N 24°52.8'	10.6'	3.0'	54.4'	116°22.4'	111°56.2'	62°19.4'	32°57.1'	26°09.5'	1°21.0'		19°00.3'	59°59.4'
16	357°52.8'	N 24°55.8'	10.6'	2.9'	54.5'	115°52.6'	111°30.0'	61°49.6'	32°33.6'	25°39.8'	1°49.4'		19°29.1'	60°26.8'
17	12°22.3'	N 24°58.8'	10.5'	2.8'	54.5'	115°22.8'	111°03.8'	61°19.7'	32°10.3'	25°10.1'	2°17.8'		19°57.9'	60°54.2'
18	26°51.8'	N 25°01.6'	10.5'	2.7'	54.5'	114°53.0'	110°37.6'	60°49.9'	31°47.1'	24°40.4'	2°46.2'		20°26.8'	61°21.7'
19	41°21.3'	N 25°04.2'	10.4'	2.6'	54.5'	114°23.2'	110°11.3'	60°20.0'	31°24.1'	24°10.7'	3°14.7'		20°55.7'	61°49.2'
20	55°50.8'	N 25°06.8'	10.4'	2.4'	54.5'	113°53.4'	109°45.0'	59°50.1'	31°01.2'	23°40.9'	3°43.2'		21°24.7'	62°16.7'
21	70°20.2'	N 25°09.2'	10.4'	2.3'	54.5'	113°23.5'	109°18.6'	59°20.2'	30°38.5'	23°11.2'	4°11.7'		21°53.8'	62°44.2'
22	84°49.5'	N 25°11.6'	10.3'	2.2'	54.6'	112°53.7'	108°52.2'	58°50.3'	30°16.0'	22°41.4'	4°40.2'		22°22.9'	63°11.7'
23	99°18.8'	N 25°13.8'	10.3'	2.1'	54.6'	112°23.8'	108°25.8'	58°20.3'	29°53.7'	22°11.7'	5°08.8'		22°52.1'	63°39.3'
Mer. pass.		16 h 9 m SD 14.8'		phase 20%										

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.2'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.4'	Canopus	-0.6	263°53.9'	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	206°19.7'	180°08.8'	N 10°49.7'	174°17.5'	N 12°05.0'		237°30.8'	S 13°24.0'		251°11.4'	S 17°34.7'		119°59.6'	N 24°51.8'				
1	221°22.2'	195°09.0'	N 10°50.6'	189°17.1'	N 12°06.1'		252°32.9'	S 13°23.8'		266°13.7'	S 17°34.7'		135°00.4'	N 24°51.9'				
2	236°24.6'	210°09.1'	N 10°51.5'	204°16.6'	N 12°07.2'		267°34.9'	S 13°23.7'		281°16.0'	S 17°34.6'		150°01.2'	N 24°51.9'				
3	251°27.1'	225°09.2'	N 10°52.3'	219°16.1'	N 12°08.3'		282°37.0'	S 13°23.5'		296°18.4'	S 17°34.6'		165°02.0'	N 24°51.9'				
4	266°29.6'	240°09.4'	N 10°53.2'	234°15.6'	N 12°09.4'		297°39.0'	S 13°23.4'		311°20.7'	S 17°34.6'		180°02.8'	N 24°52.0'				
5	281°32.0'	255°09.5'	N 10°54.1'	249°15.1'	N 12°10.5'		312°41.1'	S 13°23.3'		326°23.0'	S 17°34.5'		195°03.6'	N 24°52.0'				
6	296°34.5'	270°09.6'	N 10°54.9'	264°14.6'	N 12°11.7'		327°43.2'	S 13°23.1'		341°25.3'	S 17°34.5'		210°04.4'	N 24°52.0'				
7	311°37.0'	285°09.8'	N 10°55.8'	279°14.2'	N 12°12.8'		342°45.2'	S 13°23.0'		356°27.7'	S 17°34.5'		225°05.2'	N 24°52.1'				
8	326°39.4'	300°09.9'	N 10°56.7'	294°13.7'	N 12°13.9'		357°47.3'	S 13°22.9'		11°30.0'	S 17°34.4'		240°06.0'	N 24°52.1'				
9	341°41.9'	315°10.1'	N 10°57.6'	309°13.2'	N 12°15.0'		12°49.3'	S 13°22.7'		26°32.3'	S 17°34.4'		255°06.8'	N 24°52.1'				
10	356°44.4'	330°10.2'	N 10°58.4'	324°12.7'	N 12°16.1'		27°51.4'	S 13°22.6'		41°34.6'	S 17°34.4'		270°07.6'	N 24°52.2'				
11	11°46.8'	345°10.3'	N 10°59.3'	339°12.2'	N 12°17.2'		42°53.4'	S 13°22.5'		56°37.0'	S 17°34.3'		285°08.4'	N 24°52.2'				
12	26°49.3'	0°10.5'	N 11°00.2'	354°11.7'	N 12°18.3'		57°55.5'	S 13°22.3'		71°39.3'	S 17°34.3'		300°09.2'	N 24°52.2'				
13	41°51.7'	15°10.6'	N 11°01.0'	9°11.2'	N 12°19.5'		72°57.6'	S 13°22.2'		86°41.6'	S 17°34.3'		315°10.0'	N 24°52.3'				
14	56°54.2'	30°10.7'	N 11°01.9'	24°10.7'	N 12°20.6'		87°59.6'	S 13°22.1'		101°43.9'	S 17°34.2'		330°10.8'	N 24°52.3'				
15	71°56.7'	45°10.9'	N 11°02.8'	39°10.2'	N 12°21.7'		103°01.7'	S 13°21.9'		116°46.3'	S 17°34.2'		345°11.6'	N 24°52.3'				
16	86°59.1'	60°11.0'	N 11°03.6'	54°09.8'	N 12°22.8'		118°03.7'	S 13°21.8'		131°48.6'	S 17°34.2'		0°12.4'	N 24°52.4'				
17	102°01.6'	75°11.2'	N 11°04.5'	69°09.3'	N 12°23.9'		133°05.8'	S 13°21.7'		146°50.9'	S 17°34.1'		15°13.2'	N 24°52.4'				
18	117°04.1'	90°11.3'	N 11°05.4'	84°08.8'	N 12°25.0'		148°07.8'	S 13°21.5'		161°53.2'	S 17°34.1'		30°14.0'	N 24°52.4'				
19	132°06.5'	105°11.4'	N 11°06.2'	99°08.3'	N 12°26.1'		163°09.9'	S 13°21.4'		176°55.6'	S 17°34.1'		45°14.8'	N 24°52.5'				
20	147°09.0'	120°11.6'	N 11°07.1'	114°07.8'	N 12°27.2'		178°12.0'	S 13°21.3'		191°57.9'	S 17°34.0'		60°15.6'	N 24°52.5'				
21	162°11.5'	135°11.7'	N 11°08.0'	129°07.3'	N 12°28.3'		193°14.0'	S 13°21.1'		207°00.2'	S 17°34.0'		75°16.4'	N 24°52.5'				
22	177°13.9'	150°11.8'	N 11°08.8'	144°06.8'	N 12°29.5'		208°16.1'	S 13°21.0'		222°02.5'	S 17°34.0'		90°17.2'	N 24°52.5'				
23	192°16.4'	165°12.0'	N 11°09.7'	159°06.3'	N 12°30.6'		223°18.1'	S 13°20.9'		237°04.9'	S 17°33.9'		105°18.0'	N 24°52.6'				
		SD 15.9'	d 0.9'		v -0.5'	d 1.1'		v 2.1'	d 0.1'		v 2.3'	d 0.0'		v 0.8'	d 0.0'			
Mer. pass.		11 h 59 m 19 s			12 h 23 m			8 h 9 m			7 h 14 m			15 h 59 m				

h	Moon					Lunar distance												
	GHA	dec	v	d	HP	-Arcturus	-Regulus	-Procyon	-Pollux	+Mars	+Betelgeuse	+Capella	+Sun					
0	113°48.1'	N 25°15.8'	10.2'	2.0'	54.6'	107°59.3'	57°50.4'	29°31.6'	21°42.0'	5°37.3'			64°06.9'					
1	128°17.4'	N 25°17.8'	10.2'	1.8'	54.6'	107°32.8'	57°20.4'	29°09.7'	21°12.2'	6°05.9'			64°34.5'					
2	142°46.6'	N 25°19.6'	10.2'	1.7'	54.6'	107°06.3'	56°50.4'	28°48.0'	20°42.5'	6°34.5'			65°02.1'					
3	157°15.7'	N 25°21.3'	10.1'	1.6'	54.6'	106°39.7'	56°20.4'	28°26.5'	20°12.7'	7°03.2'			65°29.7'					
4	171°44.9'	N 25°22.9'	10.1'	1.5'	54.7'	106°13.1'	55°50.4'	28°05.2'	19°42.9'	7°31.8'			65°57.3'					
5	186°14.0'	N 25°24.4'	10.1'	1.3'	54.7'	105°46.5'	55°20.4'	27°44.2'	19°13.2'	8°00.5'			66°25.0'					
6	200°43.0'	N 25°25.7'	10.0'	1.2'	54.7'	105°19.8'	54°50.3'	27°23.4'	18°43.5'	8°29.2'			66°52.7'					
7	215°12.1'	N 25°26.9'	10.0'	1.1'	54.7'	104°53.1'	54°20.3'	27°02.9'	18°13.7'	8°57.9'			67°20.4'					
8	229°41.1'	N 25°28.0'	10.0'	1.0'	54.7'	104°26.4'	53°50.2'	26°42.7'	17°44.0'	9°26.6'			67°48.1'					
9	244°10.0'	N 25°28.9'	9.9'	0.8'	54.8'	103°59.6'	53°20.1'	26°22.7'	17°14.2'	9°55.4'			68°15.9'					
10	258°39.0'	N 25°29.8'	9.9'	0.7'	54.8'	103°32.9'	52°49.9'	26°03.1'	16°44.5'	10°24.1'		25°18.5'	68°43.6'					
11	273°07.9'	N 25°30.5'	9.9'	0.6'	54.8'	103°06.0'	52°19.8'	25°43.7'	16°14.8'	10°52.9'	20°16.4'	25°33.7'	69°11.4'					
12	287°36.7'	N 25°31.1'	9.8'	0.5'	54.8'	102°39.2'	51°49.6'	25°24.7'	15°45.1'	11°21.7'	20°31.7'	25°49.3'	69°39.3'					
13	302°05.6'	N 25°31.5'	9.8'	0.3'	54.8'	102°12.3'	51°19.5'	25°06.0'	15°15.5'	11°50.6'	20°47.5'	26°05.3'	70°07.1'					
14	316°34.4'	N 25°31.8'	9.8'	0.2'	54.9'	101°45.3'	50°49.3'	24°47.6'	14°45.8'	12°19.4'	21°03.8'	26°21.8'	70°34.9'					
15	331°03.2'	N 25°32.0'	9.8'	0.1'	54.9'	101°18.4'	50°19.0'	24°29.6'	14°16.2'	12°48.3'	21°20.6'	26°38.6'	71°02.8'					
16	345°32.0'	N 25°32.1'	9.7'	-0.1'	54.9'	100°51.4'	49°48.8'	24°12.0'	13°46.6'	13°17.2'	21°37.9'	26°55.8'	71°30.7'					
17	0°00.7'	N 25°32.0'	9.7'	-0.2'	54.9'	100°24.4'	49°18.5'	23°54.7'	13°17.0'	13°46.1'	21°55.7'	27°13.4'	71°58.7'					
18	14°29.4'	N 25°31.8'	9.7'	-0.3'	55.0'	99°57.3'	48°48.3'	23°37.9'	12°47.5'	14°15.1'	22°13.9'	27°31.3'	72°26.6'					
19	28°58.1'	N 25°31.5'	9.7'	-0.4'	55.0'	99°30.2'	48°18.0'	23°21.5'	12°18.1'	14°44.0'	22°32.6'	27°49.6'	72°54.6'					
20	43°26.8'	N 25°31.1'	9.6'	-0.6'	55.0'	99°03.1'	47°47.6'	23°05.5'	11°48.7'	15°13.0'	22°51.7'	28°08.2'	73°22.6'					
21	57°55.4'	N 25°30.5'	9.6'	-0.7'	55.0'	98°36.0'	47°17.3'	22°50.0'	11°19.4'	15°42.1'	23°11.1'	28°27.2'	73°50.6'					
22	72°24.0'	N 25°29.8'	9.6'	-0.8'	55.0'	98°08.8'	46°46.9'		10°50.2'	16°11.1'	23°31.0'	28°46.4'	74°18.7'					
23	86°52.7'	N 25°29.0'	9.6'	-1.0'	55.1'	97°41.6'	46°16.5'		10°21.0'	16°40.2'	23°51.2'	29°06.0'	74°46.7'					
Mer. pass.		17 h 0 m SD 14.9'	phase 28%															

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.2'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.0'	S 52°42.7'				

Monday 19 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	207°18.9'	180°12.1'	N 11°10.6'	174°05.8'	N 12°31.7'		238°20.2'	S 13°20.7'	252°07.2'	S 17°33.9'	120°18.8'	N 24°52.6'		
1	222°21.3'	195°12.2'	N 11°11.4'	189°05.3'	N 12°32.8'		253°22.3'	S 13°20.6'	267°09.5'	S 17°33.9'	135°19.6'	N 24°52.6'		
2	237°23.8'	210°12.4'	N 11°12.3'	204°04.8'	N 12°33.9'		268°24.3'	S 13°20.5'	282°11.8'	S 17°33.8'	150°20.4'	N 24°52.7'		
3	252°26.2'	225°12.5'	N 11°13.2'	219°04.3'	N 12°35.0'		283°26.4'	S 13°20.3'	297°14.2'	S 17°33.8'	165°21.2'	N 24°52.7'		
4	267°28.7'	240°12.7'	N 11°14.0'	234°03.9'	N 12°36.1'		298°28.4'	S 13°20.2'	312°16.5'	S 17°33.8'	180°22.0'	N 24°52.7'		
5	282°31.2'	255°12.8'	N 11°14.9'	249°03.4'	N 12°37.2'		313°30.5'	S 13°20.1'	327°18.8'	S 17°33.7'	195°22.8'	N 24°52.7'		
6	297°33.6'	270°12.9'	N 11°15.7'	264°02.9'	N 12°38.3'		328°32.6'	S 13°19.9'	342°21.1'	S 17°33.7'	210°23.6'	N 24°52.8'		
7	312°36.1'	285°13.1'	N 11°16.6'	279°02.4'	N 12°39.4'		343°34.6'	S 13°19.8'	357°23.5'	S 17°33.7'	225°24.4'	N 24°52.8'		
8	327°38.6'	300°13.2'	N 11°17.5'	294°01.9'	N 12°40.5'		358°36.7'	S 13°19.6'	12°25.8'	S 17°33.6'	240°25.2'	N 24°52.8'		
9	342°41.0'	315°13.3'	N 11°18.3'	309°01.4'	N 12°41.6'		13°38.7'	S 13°19.5'	27°28.1'	S 17°33.6'	255°25.9'	N 24°52.8'		
10	357°43.5'	330°13.5'	N 11°19.2'	324°00.9'	N 12°42.7'		28°40.8'	S 13°19.4'	42°30.5'	S 17°33.6'	270°26.7'	N 24°52.9'		
11	12°46.0'	345°13.6'	N 11°20.1'	339°00.4'	N 12°43.8'		43°42.9'	S 13°19.2'	57°32.8'	S 17°33.5'	285°27.5'	N 24°52.9'		
12	27°48.4'	0°13.7'	N 11°20.9'	353°59.9'	N 12°44.9'		58°44.9'	S 13°19.1'	72°35.1'	S 17°33.5'	300°28.3'	N 24°52.9'		
13	42°50.9'	15°13.9'	N 11°21.8'	8°59.4'	N 12°46.0'		73°47.0'	S 13°19.0'	87°37.4'	S 17°33.5'	315°29.1'	N 24°52.9'		
14	57°53.4'	30°14.0'	N 11°22.6'	23°58.9'	N 12°47.1'		88°49.0'	S 13°18.8'	102°39.8'	S 17°33.4'	330°29.9'	N 24°53.0'		
15	72°55.8'	45°14.1'	N 11°23.5'	38°58.4'	N 12°48.2'		103°51.1'	S 13°18.7'	117°42.1'	S 17°33.4'	345°30.7'	N 24°53.0'		
16	87°58.3'	60°14.3'	N 11°24.4'	53°57.9'	N 12°49.3'		118°53.2'	S 13°18.6'	132°44.4'	S 17°33.4'	0°31.5'	N 24°53.0'		
17	103°00.7'	75°14.4'	N 11°25.2'	68°57.4'	N 12°50.4'		133°55.2'	S 13°18.4'	147°46.8'	S 17°33.3'	15°32.3'	N 24°53.0'		
18	118°03.2'	90°14.5'	N 11°26.1'	83°56.9'	N 12°51.5'		148°57.3'	S 13°18.3'	162°49.1'	S 17°33.3'	30°33.1'	N 24°53.1'		
19	133°05.7'	105°14.7'	N 11°26.9'	98°56.4'	N 12°52.6'		163°59.4'	S 13°18.2'	177°51.4'	S 17°33.3'	45°33.9'	N 24°53.1'		
20	148°08.1'	120°14.8'	N 11°27.8'	113°55.9'	N 12°53.7'		179°01.4'	S 13°18.1'	192°53.7'	S 17°33.2'	60°34.7'	N 24°53.1'		
21	163°10.6'	135°14.9'	N 11°28.7'	128°55.4'	N 12°54.8'		194°03.5'	S 13°17.9'	207°56.1'	S 17°33.2'	75°35.5'	N 24°53.1'		
22	178°13.1'	150°15.0'	N 11°29.5'	143°54.9'	N 12°55.9'		209°05.6'	S 13°17.8'	222°58.4'	S 17°33.2'	90°36.3'	N 24°53.1'		
23	193°15.5'	165°15.2'	N 11°30.4'	158°54.4'	N 12°57.0'		224°07.6'	S 13°17.7'	238°00.7'	S 17°33.1'	105°37.1'	N 24°53.2'		
		SD 15.9'	d 0.9'	v -0.5'	d 1.1'		v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.0'		
Mer. pass.		11 h 59 m 6 s		12 h 24 m			8 h 6 m		7 h 10 m		15 h 58 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Spica	-Arcturus	-Regulus	-Pollux	+Mars	+Betelgeuse	+Capella	+Sun
0	101°21.2'	N 25°28.0'	9.6'	-1.1'	55.1'	99°49.9'	97°14.3'	45°46.1'	9°52.0'	17°09.3'	24°11.8'	29°25.9'	75°14.8'
1	115°49.8'	N 25°26.9'	9.5'	-1.2'	55.1'	99°19.4'	96°47.1'	45°15.7'	9°23.1'	17°38.4'	24°32.8'	29°46.1'	75°43.0'
2	130°18.3'	N 25°25.7'	9.5'	-1.4'	55.1'	98°49.0'	96°19.8'	44°45.3'	8°54.5'	18°07.5'	24°54.0'	30°06.6'	76°11.1'
3	144°46.9'	N 25°24.3'	9.5'	-1.5'	55.2'	98°18.4'	95°52.5'	44°14.8'	8°26.0'	18°36.7'	25°15.6'	30°27.3'	76°39.3'
4	159°15.4'	N 25°22.8'	9.5'	-1.6'	55.2'	97°47.9'	95°25.1'	43°44.3'	7°57.7'	19°05.9'	25°37.5'	30°48.3'	77°07.5'
5	173°43.9'	N 25°21.2'	9.5'	-1.8'	55.2'	97°17.3'	94°57.7'	43°13.8'	7°29.8'	19°35.1'	25°59.7'	31°09.6'	77°35.7'
6	188°12.4'	N 25°19.4'	9.5'	-1.9'	55.2'	96°46.7'	94°30.3'	42°43.2'	7°02.2'	20°04.4'	26°22.2'	31°31.1'	78°04.0'
7	202°40.9'	N 25°17.6'	9.5'	-2.0'	55.3'	96°16.1'	94°02.9'	42°12.6'	6°35.0'	20°33.7'	26°45.0'	31°52.9'	78°32.3'
8	217°09.3'	N 25°15.5'	9.4'	-2.1'	55.3'	95°45.5'	93°35.4'	41°42.1'	6°08.4'	21°03.0'	27°08.0'	32°14.9'	79°00.6'
9	231°37.8'	N 25°13.4'	9.4'	-2.3'	55.3'	95°14.8'	93°07.9'	41°11.4'		21°32.3'	27°31.3'	32°37.1'	79°28.9'
10	246°06.2'	N 25°11.1'	9.4'	-2.4'	55.3'	94°44.1'	92°40.4'	40°40.8'		22°01.7'	27°54.8'	32°59.6'	79°57.3'
11	260°34.6'	N 25°08.7'	9.4'	-2.5'	55.4'	94°13.3'	92°12.8'	40°10.1'		22°31.1'	28°18.5'	33°22.3'	80°25.7'
12	275°03.0'	N 25°06.2'	9.4'	-2.7'	55.4'	93°42.6'	91°45.2'	39°39.4'		23°00.5'	28°42.5'	33°45.2'	80°54.2'
13	289°31.4'	N 25°03.5'	9.4'	-2.8'	55.4'	93°11.8'	91°17.6'	39°08.7'		23°29.9'	29°06.8'	34°08.3'	81°22.6'
14	303°59.8'	N 25°00.7'	9.4'	-2.9'	55.5'	92°40.9'	90°49.9'	38°38.0'		23°59.4'	29°31.2'	34°31.6'	81°51.1'
15	318°28.2'	N 24°57.7'	9.4'	-3.1'	55.5'	92°10.1'	90°22.3'	38°07.2'		24°28.9'	29°55.8'	34°55.1'	82°19.7'
16	332°56.6'	N 24°54.7'	9.4'	-3.2'	55.5'	91°39.2'	89°54.6'	37°36.5'		24°58.5'	30°20.7'	35°18.8'	82°48.2'
17	347°25.0'	N 24°51.4'	9.4'	-3.3'	55.5'	91°08.3'	89°26.8'	37°05.7'		25°28.1'	30°45.7'	35°42.7'	83°16.8'
18	1°53.4'	N 24°48.1'	9.4'	-3.5'	55.6'	90°37.3'	88°59.1'	36°34.8'		25°57.7'	31°11.0'	36°06.8'	83°45.4'
19	16°21.8'	N 24°44.6'	9.4'	-3.6'	55.6'	90°06.3'	88°31.3'	36°04.0'		26°27.3'	31°36.4'	36°31.0'	84°14.1'
20	30°50.1'	N 24°41.0'	9.4'	-3.7'	55.6'	89°35.3'	88°03.5'	35°33.1'		26°57.0'	32°02.0'	36°55.4'	84°42.8'
21	45°18.5'	N 24°37.3'	9.4'	-3.9'	55.7'	89°04.3'	87°35.7'	35°02.2'		27°26.7'	32°27.7'	37°20.0'	85°11.5'
22	59°46.9'	N 24°33.4'	9.4'	-4.0'	55.7'	88°33.2'	87°07.8'	34°31.2'		27°56.4'	32°53.7'	37°44.8'	85°40.2'
23	74°15.2'	N 24°29.4'	9.4'	-4.1'	55.7'	88°02.1'	86°39.9'	34°00.3'		28°26.2'	33°19.8'	38°09.7'	86°09.0'
Mer. pass.		17 h 52 m	SD 15.0'	phase 37%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	S 29°30.7'	Spica	+1.0	158°25.2'	S 11°16.3'	Betelgeuse	+0.5	270°55.6'	N 7°24.5'
Deneb	+1.2	49°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.3'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.0'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA		GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	208°18.0'	180°15.3'	N 11°31.2'	173°53.9'	N 12°58.1'	239°09.7'	S 13°17.5'	253°03.1'	S 17°33.1'	120°37.9'	N 24°53.2'	
1	223°20.5'	195°15.4'	N 11°32.1'	188°53.4'	N 12°59.2'	254°11.7'	S 13°17.4'	268°05.4'	S 17°33.1'	135°38.7'	N 24°53.2'	
2	238°22.9'	210°15.6'	N 11°32.9'	203°52.9'	N 13°00.3'	269°13.8'	S 13°17.3'	283°07.7'	S 17°33.1'	150°39.5'	N 24°53.2'	
3	253°25.4'	225°15.7'	N 11°33.8'	218°52.4'	N 13°01.4'	284°15.9'	S 13°17.1'	298°10.1'	S 17°33.0'	165°40.3'	N 24°53.2'	
4	268°27.9'	240°15.8'	N 11°34.7'	233°51.9'	N 13°02.4'	299°17.9'	S 13°17.0'	313°12.4'	S 17°33.0'	180°41.1'	N 24°53.3'	
5	283°30.3'	255°16.0'	N 11°35.5'	248°51.4'	N 13°03.5'	314°20.0'	S 13°16.9'	328°14.7'	S 17°33.0'	195°41.9'	N 24°53.3'	
6	298°32.8'	270°16.1'	N 11°36.4'	263°50.9'	N 13°04.6'	329°22.1'	S 13°16.7'	343°17.0'	S 17°32.9'	210°42.7'	N 24°53.3'	
7	313°35.2'	285°16.2'	N 11°37.2'	278°50.4'	N 13°05.7'	344°24.1'	S 13°16.6'	358°19.4'	S 17°32.9'	225°43.5'	N 24°53.3'	
8	328°37.7'	300°16.4'	N 11°38.1'	293°49.9'	N 13°06.8'	359°26.2'	S 13°16.5'	13°21.7'	S 17°32.9'	240°44.3'	N 24°53.3'	
9	343°40.2'	315°16.5'	N 11°38.9'	308°49.4'	N 13°07.9'	14°28.3'	S 13°16.3'	28°24.0'	S 17°32.8'	255°45.1'	N 24°53.4'	
10	358°42.6'	330°16.6'	N 11°39.8'	323°48.9'	N 13°09.0'	29°30.3'	S 13°16.2'	43°26.4'	S 17°32.8'	270°45.9'	N 24°53.4'	
11	13°45.1'	345°16.7'	N 11°40.6'	338°48.3'	N 13°10.1'	44°32.4'	S 13°16.1'	58°28.7'	S 17°32.8'	285°46.7'	N 24°53.4'	
12	28°47.6'	0°16.9'	N 11°41.5'	353°47.8'	N 13°11.2'	59°34.5'	S 13°15.9'	73°31.0'	S 17°32.7'	300°47.5'	N 24°53.4'	
13	43°50.0'	15°17.0'	N 11°42.3'	8°47.3'	N 13°12.2'	74°36.5'	S 13°15.8'	88°33.4'	S 17°32.7'	315°48.2'	N 24°53.4'	
14	58°52.5'	30°17.1'	N 11°43.2'	23°46.8'	N 13°13.3'	89°38.6'	S 13°15.7'	103°35.7'	S 17°32.7'	330°49.0'	N 24°53.4'	
15	73°55.0'	45°17.3'	N 11°44.0'	38°46.3'	N 13°14.4'	104°40.7'	S 13°15.5'	118°38.0'	S 17°32.6'	345°49.8'	N 24°53.5'	
16	88°57.4'	60°17.4'	N 11°44.9'	53°45.8'	N 13°15.5'	119°42.7'	S 13°15.4'	133°40.4'	S 17°32.6'	0°50.6'	N 24°53.5'	
17	103°59.9'	75°17.5'	N 11°45.8'	68°45.3'	N 13°16.6'	134°44.8'	S 13°15.3'	148°42.7'	S 17°32.6'	15°51.4'	N 24°53.5'	
18	119°02.3'	90°17.6'	N 11°46.6'	83°44.8'	N 13°17.7'	149°46.9'	S 13°15.1'	163°45.0'	S 17°32.5'	30°52.2'	N 24°53.5'	
19	134°04.8'	105°17.8'	N 11°47.5'	98°44.3'	N 13°18.8'	164°48.9'	S 13°15.0'	178°47.4'	S 17°32.5'	45°53.0'	N 24°53.5'	
20	149°07.3'	120°17.9'	N 11°48.3'	113°43.8'	N 13°19.8'	179°51.0'	S 13°14.9'	193°49.7'	S 17°32.5'	60°53.8'	N 24°53.5'	
21	164°09.7'	135°18.0'	N 11°49.2'	128°43.3'	N 13°20.9'	194°53.1'	S 13°14.7'	208°52.0'	S 17°32.5'	75°54.6'	N 24°53.6'	
22	179°12.2'	150°18.2'	N 11°50.0'	143°42.7'	N 13°22.0'	209°55.1'	S 13°14.6'	223°54.4'	S 17°32.4'	90°55.4'	N 24°53.6'	
23	194°14.7'	165°18.3'	N 11°50.9'	158°42.2'	N 13°23.1'	224°57.2'	S 13°14.5'	238°56.7'	S 17°32.4'	105°56.2'	N 24°53.6'	
		SD 15.9'	d 0.9'	v -0.5'	d 1.1'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.0'	
Mer. pass.		11 h 58 m 53 s		12 h 25 m		8 h 2 m		7 h 7 m		15 h 57 m		

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Spica	-Arcturus	-Regulus	+Pollux	+Procyon	+Mars	+Sun
0	88°43.6'	N 24°25.3'	9.4'	-4.3'	55.7'	102°11.9'	87°30.9'	86°12.0'	33°29.3'			28°56.0'	86°37.8'
1	103°12.0'	N 24°21.1'	9.4'	-4.4'	55.8'	101°54.9'	86°59.8'	85°44.1'	32°58.3'			29°25.8'	87°06.7'
2	117°40.3'	N 24°16.7'	9.4'	-4.5'	55.8'	101°37.8'	86°28.5'	85°16.1'	32°27.3'			29°55.7'	87°35.6'
3	132°08.7'	N 24°12.1'	9.4'	-4.7'	55.8'	101°20.6'	85°57.3'	84°48.1'	31°56.2'			30°25.6'	88°04.5'
4	146°37.1'	N 24°07.5'	9.4'	-4.8'	55.9'	101°03.4'	85°26.0'	84°20.1'	31°25.1'	6°03.1'		30°55.6'	88°33.4'
5	161°05.5'	N 24°02.7'	9.4'	-4.9'	55.9'	100°46.1'	84°54.7'	83°52.0'	30°54.0'	6°30.1'		31°25.5'	89°02.4'
6	175°33.9'	N 23°57.8'	9.4'	-5.0'	55.9'	100°28.8'	84°23.3'	83°24.0'	30°22.9'	6°57.8'		31°55.5'	89°31.5'
7	190°02.2'	N 23°52.7'	9.4'	-5.2'	56.0'	100°11.4'	83°52.0'	82°55.9'	29°51.8'	7°26.1'		32°25.6'	90°00.5'
8	204°30.6'	N 23°47.6'	9.4'	-5.3'	56.0'	99°54.0'	83°20.5'	82°27.7'	29°20.6'	7°54.8'		32°55.7'	90°29.6'
9	218°59.0'	N 23°42.2'	9.4'	-5.4'	56.0'	99°36.5'	82°49.1'	81°59.6'	28°49.4'	8°23.8'		33°25.8'	90°58.8'
10	233°27.5'	N 23°36.8'	9.4'	-5.6'	56.1'	99°18.9'	82°17.6'	81°31.4'	28°18.2'	8°53.2'		33°55.9'	91°27.9'
11	247°55.9'	N 23°31.2'	9.4'	-5.7'	56.1'	99°01.3'	81°46.0'	81°03.2'	27°47.0'	9°22.9'		34°26.1'	91°57.1'
12	262°24.3'	N 23°25.5'	9.4'	-5.8'	56.1'	98°43.6'	81°14.5'	80°35.0'	27°15.7'	9°52.8'		34°56.4'	92°26.4'
13	276°52.7'	N 23°19.7'	9.4'	-6.0'	56.2'	98°25.9'	80°42.9'	80°06.8'	26°44.5'	10°22.9'		35°26.6'	92°55.7'
14	291°21.2'	N 23°13.7'	9.5'	-6.1'	56.2'	98°08.1'	80°11.2'	79°38.5'	26°13.2'	10°53.2'		35°56.9'	93°25.0'
15	305°49.6'	N 23°07.6'	9.5'	-6.2'	56.2'	97°50.3'	79°39.6'	79°10.2'	25°41.9'	11°23.7'		36°27.3'	93°54.4'
16	320°18.1'	N 23°01.4'	9.5'	-6.3'	56.3'	97°32.5'	79°07.8'	78°41.9'	25°10.5'	11°54.4'		36°57.7'	94°23.8'
17	334°46.6'	N 22°55.1'	9.5'	-6.5'	56.3'	97°14.5'	78°36.1'	78°13.6'	24°39.2'	12°25.2'	22°22.9'	37°28.1'	94°53.2'
18	349°15.1'	N 22°48.6'	9.5'	-6.6'	56.3'	96°56.6'	78°04.3'	77°45.2'	24°07.8'	12°56.1'	22°38.2'	37°58.5'	95°22.7'
19	3°43.6'	N 22°42.0'	9.5'	-6.7'	56.4'	96°38.6'	77°32.5'	77°16.9'	23°36.5'	13°27.1'	22°54.1'	38°29.0'	95°52.2'
20	18°12.1'	N 22°35.3'	9.5'	-6.9'	56.4'	96°20.5'	77°00.6'	76°48.5'	23°05.1'	13°58.3'	23°10.5'	38°59.6'	96°21.8'
21	32°40.6'	N 22°28.4'	9.5'	-7.0'	56.4'	96°02.4'	76°28.7'	76°20.1'	22°33.7'	14°29.5'	23°27.5'	39°30.2'	96°51.3'
22	47°09.2'	N 22°21.4'	9.6'	-7.1'	56.5'	95°44.3'	75°56.7'	75°51.6'	22°02.3'	15°00.9'	23°45.0'	40°00.8'	97°21.0'
23	61°37.7'	N 22°14.3'	9.6'	-7.2'	56.5'	95°26.1'	75°24.7'	75°23.2'	21°30.9'	15°32.3'	24°02.9'	40°31.4'	97°50.7'
Mer. pass.		18 h 45 m SD 15.2'		phase 47%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	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°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.4'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
Arcturus	-0.1	145°50.4'	N 19°04.3'	Sirius	-1.4	258°29.0'	S 16°44.9'				
Hadar	+0.6	148°39.6'	S 60°28.5'	Canopus	-0.6	263°54.0'	S 52°42.7'				

Wednesday 21 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	209°17.1'	180°18.4'	N 11°51.7'	173°41.7'	N 13°24.2'	239°59.3'	S 13°14.4'	253°59.0'	S 17°32.4'	120°57.0'	N 24°53.6'			
1	224°19.6'	195°18.5'	N 11°52.6'	188°41.2'	N 13°25.2'	255°01.3'	S 13°14.2'	269°01.4'	S 17°32.3'	135°57.8'	N 24°53.6'			
2	239°22.1'	210°18.7'	N 11°53.4'	203°40.7'	N 13°26.3'	270°03.4'	S 13°14.1'	284°03.7'	S 17°32.3'	150°58.6'	N 24°53.6'			
3	254°24.5'	225°18.8'	N 11°54.2'	218°40.2'	N 13°27.4'	285°05.5'	S 13°14.0'	299°06.0'	S 17°32.3'	165°59.4'	N 24°53.6'			
4	269°27.0'	240°18.9'	N 11°55.1'	233°39.7'	N 13°28.5'	300°07.6'	S 13°13.8'	314°08.4'	S 17°32.2'	181°00.2'	N 24°53.7'			
5	284°29.5'	255°19.0'	N 11°55.9'	248°39.2'	N 13°29.6'	315°09.6'	S 13°13.7'	329°10.7'	S 17°32.2'	196°01.0'	N 24°53.7'			
6	299°31.9'	270°19.2'	N 11°56.8'	263°38.7'	N 13°30.6'	330°11.7'	S 13°13.6'	344°13.0'	S 17°32.2'	211°01.8'	N 24°53.7'			
7	314°34.4'	285°19.3'	N 11°57.6'	278°38.1'	N 13°31.7'	345°13.8'	S 13°13.4'	359°15.4'	S 17°32.1'	226°02.6'	N 24°53.7'			
8	329°36.8'	300°19.4'	N 11°58.5'	293°37.6'	N 13°32.8'	0°15.8'	S 13°13.3'	14°17.7'	S 17°32.1'	241°03.4'	N 24°53.7'			
9	344°39.3'	315°19.5'	N 11°59.3'	308°37.1'	N 13°33.9'	15°17.9'	S 13°13.2'	29°20.0'	S 17°32.1'	256°04.2'	N 24°53.7'			
10	359°41.8'	330°19.7'	N 12°00.2'	323°36.6'	N 13°34.9'	30°20.0'	S 13°13.0'	44°22.4'	S 17°32.1'	271°05.0'	N 24°53.7'			
11	14°44.2'	345°19.8'	N 12°01.0'	338°36.1'	N 13°36.0'	45°22.1'	S 13°12.9'	59°24.7'	S 17°32.0'	286°05.7'	N 24°53.7'			
12	29°46.7'	0°19.9'	N 12°01.9'	353°35.6'	N 13°37.1'	60°24.1'	S 13°12.8'	74°27.1'	S 17°32.0'	301°06.5'	N 24°53.7'			
13	44°49.2'	15°20.0'	N 12°02.7'	8°35.0'	N 13°38.2'	75°26.2'	S 13°12.7'	89°29.4'	S 17°32.0'	316°07.3'	N 24°53.8'			
14	59°51.6'	30°20.2'	N 12°03.6'	23°34.5'	N 13°39.2'	90°28.3'	S 13°12.5'	104°31.7'	S 17°31.9'	331°08.1'	N 24°53.8'			
15	74°54.1'	45°20.3'	N 12°04.4'	38°34.0'	N 13°40.3'	105°30.3'	S 13°12.4'	119°34.1'	S 17°31.9'	346°08.9'	N 24°53.8'			
16	89°56.6'	60°20.4'	N 12°05.2'	53°33.5'	N 13°41.4'	120°32.4'	S 13°12.3'	134°36.4'	S 17°31.9'	1°09.7'	N 24°53.8'			
17	104°59.0'	75°20.5'	N 12°06.1'	68°33.0'	N 13°42.5'	135°34.5'	S 13°12.1'	149°38.7'	S 17°31.8'	16°10.5'	N 24°53.8'			
18	120°01.5'	90°20.7'	N 12°06.9'	83°32.5'	N 13°43.5'	150°36.6'	S 13°12.0'	164°41.1'	S 17°31.8'	31°11.3'	N 24°53.8'			
19	135°04.0'	105°20.8'	N 12°07.8'	98°31.9'	N 13°44.6'	165°38.6'	S 13°11.9'	179°43.4'	S 17°31.8'	46°12.1'	N 24°53.8'			
20	150°06.4'	120°20.9'	N 12°08.6'	113°31.4'	N 13°45.7'	180°40.7'	S 13°11.7'	194°45.7'	S 17°31.8'	61°12.9'	N 24°53.8'			
21	165°08.9'	135°21.0'	N 12°09.5'	128°30.9'	N 13°46.7'	195°42.8'	S 13°11.6'	209°48.1'	S 17°31.7'	76°13.7'	N 24°53.8'			
22	180°11.3'	150°21.2'	N 12°10.3'	143°30.4'	N 13°47.8'	210°44.8'	S 13°11.5'	224°50.4'	S 17°31.7'	91°14.5'	N 24°53.8'			
23	195°13.8'	165°21.3'	N 12°11.1'	158°29.9'	N 13°48.9'	225°46.9'	S 13°11.4'	239°52.8'	S 17°31.7'	106°15.3'	N 24°53.8'			
		SD 15.9'	d 0.8'	v -0.5'	d 1.1'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.0'			
Mer. pass.		11 h 58 m 41 s		12 h 26 m		7 h 59 m		7 h 3 m		15 h 55 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-AcruX	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Mars	+Sun
0	76°06.3'	N 22°07.1'	9.6'	-7.4'	56.5'	95°07.8'	74°54.7'	74°52.7'	20°59.5'	16°03.8'	24°21.4'	41°02.1'	98°20.4'
1	90°34.9'	N 21°59.7'	9.6'	-7.5'	56.6'	94°49.6'	74°26.2'	74°20.6'	20°28.1'	16°35.4'	24°40.3'	41°32.9'	98°50.2'
2	105°03.5'	N 21°52.2'	9.6'	-7.6'	56.6'	94°31.2'	73°57.7'	73°48.5'	19°56.7'	17°07.1'	24°59.7'	42°03.7'	99°20.0'
3	119°32.1'	N 21°44.6'	9.6'	-7.7'	56.6'	94°12.9'	73°29.2'	73°16.4'	19°25.3'	17°38.9'	25°19.5'	42°34.5'	99°49.8'
4	134°00.7'	N 21°36.9'	9.7'	-7.9'	56.7'	93°54.5'	73°00.6'	72°44.2'	18°53.9'	18°10.7'	25°39.8'	43°05.4'	100°19.7'
5	148°29.4'	N 21°29.0'	9.7'	-8.0'	56.7'	93°36.1'	72°32.1'	72°12.0'	18°22.6'	18°42.6'	26°00.4'	43°36.3'	100°49.6'
6	162°58.0'	N 21°21.0'	9.7'	-8.1'	56.8'	93°17.6'	72°03.5'	71°39.7'	17°51.2'	19°14.6'	26°21.4'	44°07.2'	101°19.6'
7	177°26.7'	N 21°12.9'	9.7'	-8.2'	56.8'	92°59.1'	71°34.9'	71°07.4'	17°19.9'	19°46.7'	26°42.9'	44°38.2'	101°49.6'
8	191°55.4'	N 21°04.7'	9.7'	-8.4'	56.8'	92°40.5'	71°06.3'	70°35.0'	16°48.6'	20°18.8'	27°04.7'	45°09.3'	102°19.7'
9	206°24.1'	N 20°56.3'	9.7'	-8.5'	56.9'	92°22.0'	70°37.7'	70°02.6'	16°17.3'	20°50.9'	27°26.8'	45°40.4'	102°49.8'
10	220°52.9'	N 20°47.8'	9.8'	-8.6'	56.9'	92°03.3'	70°09.1'	69°30.2'	15°46.1'	21°23.2'	27°49.3'	46°11.5'	103°19.9'
11	235°21.6'	N 20°39.2'	9.8'	-8.7'	56.9'	91°44.7'	69°40.4'	68°57.7'	15°14.9'	21°55.5'	28°12.2'	46°42.7'	103°50.1'
12	249°50.4'	N 20°30.5'	9.8'	-8.8'	57.0'	91°26.0'	69°11.8'	68°25.2'	14°43.8'	22°27.8'	28°35.3'	47°13.9'	104°20.3'
13	264°19.2'	N 20°21.7'	9.8'	-9.0'	57.0'	91°07.3'	68°43.1'	67°52.6'	14°12.8'	23°00.3'	28°58.8'	47°45.1'	104°50.6'
14	278°48.0'	N 20°12.7'	9.8'	-9.1'	57.1'	90°48.6'	68°14.4'	67°20.0'	13°41.9'	23°32.8'	29°22.6'	48°16.4'	105°20.9'
15	293°16.8'	N 20°03.6'	9.8'	-9.2'	57.1'	90°29.8'	67°45.7'	66°47.3'	13°11.1'	24°05.3'	29°46.6'	48°47.8'	105°51.3'
16	307°45.7'	N 19°54.4'	9.9'	-9.3'	57.1'	90°11.0'	67°17.0'	66°14.6'	12°40.4'	24°37.9'	30°11.0'	49°19.2'	106°21.7'
17	322°14.6'	N 19°45.1'	9.9'	-9.4'	57.2'	89°52.2'	66°48.3'	65°41.9'	12°09.8'	25°10.6'	30°35.6'	49°50.6'	106°52.2'
18	336°43.4'	N 19°35.7'	9.9'	-9.6'	57.2'	89°33.4'	66°19.6'	65°09.1'	11°39.5'	25°43.3'	31°00.5'	50°22.1'	107°22.7'
19	351°12.4'	N 19°26.1'	9.9'	-9.7'	57.2'	89°14.5'	65°50.9'	64°36.3'	11°09.3'	26°16.0'	31°25.7'	50°53.6'	107°53.2'
20	5°41.3'	N 19°16.5'	9.9'	-9.8'	57.3'	88°55.6'	65°22.2'	64°03.4'	10°39.3'	26°48.9'	31°51.1'	51°25.2'	108°23.8'
21	20°10.2'	N 19°06.7'	10.0'	-9.9'	57.3'	88°36.7'	64°53.4'	63°30.5'	10°09.7'	27°21.7'	32°16.8'	51°56.8'	108°54.5'
22	34°39.2'	N 18°56.8'	10.0'	-10.0'	57.4'	88°17.7'	64°24.7'	62°57.5'	9°40.4'	27°54.7'	32°42.6'	52°28.5'	109°25.2'
23	49°08.2'	N 18°46.8'	10.0'	-10.1'	57.4'	87°58.8'	63°56.0'	62°24.5'	9°11.4'	28°27.7'	33°08.8'	53°00.2'	109°55.9'
Mer. pass.		19 h 36 m SD 15.4'		phase 57%									

Star	mag	SHA	dec	Star	mag	SHA	dec	Star	mag	SHA	dec
Fomalhaut	+1.2	15°18.2'	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°27.9'	N 45°21.0'	AcruX	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.5'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
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°54.0'	S 52°42.7'				

Thursday 22 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	210°16.3'	180°21.4'	N 12°12.0'	173°29.3'	N 13°49.9'	240°49.0'	S 13°11.2'	254°55.1'	S 17°31.6'	121°16.1'	N 24°53.8'			
1	225°18.7'	195°21.5'	N 12°12.8'	188°28.8'	N 13°51.0'	255°51.1'	S 13°11.1'	269°57.4'	S 17°31.6'	136°16.9'	N 24°53.8'			
2	240°21.2'	210°21.7'	N 12°13.7'	203°28.3'	N 13°52.1'	270°53.1'	S 13°11.0'	284°59.8'	S 17°31.6'	151°17.7'	N 24°53.9'			
3	255°23.7'	225°21.8'	N 12°14.5'	218°27.8'	N 13°53.1'	285°55.2'	S 13°10.8'	300°02.1'	S 17°31.5'	166°18.5'	N 24°53.9'			
4	270°26.1'	240°21.9'	N 12°15.3'	233°27.2'	N 13°54.2'	300°57.3'	S 13°10.7'	315°04.4'	S 17°31.5'	181°19.3'	N 24°53.9'			
5	285°28.6'	255°22.0'	N 12°16.2'	248°26.7'	N 13°55.3'	315°59.4'	S 13°10.6'	330°06.8'	S 17°31.5'	196°20.1'	N 24°53.9'			
6	300°31.1'	270°22.1'	N 12°17.0'	263°26.2'	N 13°56.3'	331°01.4'	S 13°10.5'	345°09.1'	S 17°31.5'	211°20.8'	N 24°53.9'			
7	315°33.5'	285°22.3'	N 12°17.9'	278°25.7'	N 13°57.4'	346°03.5'	S 13°10.3'	0°11.5'	S 17°31.4'	226°21.6'	N 24°53.9'			
8	330°36.0'	300°22.4'	N 12°18.7'	293°25.1'	N 13°58.4'	1°05.6'	S 13°10.2'	15°13.8'	S 17°31.4'	241°22.4'	N 24°53.9'			
9	345°38.4'	315°22.5'	N 12°19.5'	308°24.6'	N 13°59.5'	16°07.7'	S 13°10.1'	30°16.1'	S 17°31.4'	256°23.2'	N 24°53.9'			
10	0°40.9'	330°22.6'	N 12°20.4'	323°24.1'	N 14°00.6'	31°09.7'	S 13°09.9'	45°18.5'	S 17°31.3'	271°24.0'	N 24°53.9'			
11	15°43.4'	345°22.7'	N 12°21.2'	338°23.6'	N 14°01.6'	46°11.8'	S 13°09.8'	60°20.8'	S 17°31.3'	286°24.8'	N 24°53.9'			
12	30°45.8'	0°22.9'	N 12°22.0'	353°23.0'	N 14°02.7'	61°13.9'	S 13°09.7'	75°23.2'	S 17°31.3'	301°25.6'	N 24°53.9'			
13	45°48.3'	15°23.0'	N 12°22.9'	8°22.5'	N 14°03.7'	76°16.0'	S 13°09.5'	90°25.5'	S 17°31.2'	316°26.4'	N 24°53.9'			
14	60°50.8'	30°23.1'	N 12°23.7'	23°22.0'	N 14°04.8'	91°18.0'	S 13°09.4'	105°27.8'	S 17°31.2'	331°27.2'	N 24°53.9'			
15	75°53.2'	45°23.2'	N 12°24.5'	38°21.5'	N 14°05.9'	106°20.1'	S 13°09.3'	120°30.2'	S 17°31.2'	346°28.0'	N 24°53.9'			
16	90°55.7'	60°23.3'	N 12°25.4'	53°20.9'	N 14°06.9'	121°22.2'	S 13°09.2'	135°32.5'	S 17°31.2'	1°28.8'	N 24°53.9'			
17	105°58.2'	75°23.5'	N 12°26.2'	68°20.4'	N 14°08.0'	136°24.3'	S 13°09.0'	150°34.9'	S 17°31.1'	16°29.6'	N 24°53.9'			
18	121°00.6'	90°23.6'	N 12°27.0'	83°19.9'	N 14°09.0'	151°26.4'	S 13°08.9'	165°37.2'	S 17°31.1'	31°30.4'	N 24°53.9'			
19	136°03.1'	105°23.7'	N 12°27.9'	98°19.4'	N 14°10.1'	166°28.4'	S 13°08.8'	180°39.5'	S 17°31.1'	46°31.2'	N 24°53.9'			
20	151°05.6'	120°23.8'	N 12°28.7'	113°18.8'	N 14°11.1'	181°30.5'	S 13°08.6'	195°41.9'	S 17°31.0'	61°32.0'	N 24°53.9'			
21	166°08.0'	135°23.9'	N 12°29.6'	128°18.3'	N 14°12.2'	196°32.6'	S 13°08.5'	210°44.2'	S 17°31.0'	76°32.8'	N 24°53.9'			
22	181°10.5'	150°24.1'	N 12°30.4'	143°17.8'	N 14°13.3'	211°34.7'	S 13°08.4'	225°46.6'	S 17°31.0'	91°33.6'	N 24°53.9'			
23	196°12.9'	165°24.2'	N 12°31.2'	158°17.2'	N 14°14.3'	226°36.7'	S 13°08.3'	240°48.9'	S 17°31.0'	106°34.4'	N 24°53.9'			
		SD 15.9'	d 0.8'	v -0.5'	d 1.1'	v 2.1'	d 0.1'	v 2.3'	d 0.0'	v 0.8'	d 0.0'			
Mer. pass.		11 h 58 m 29 s		12 h 27 m		7 h 56 m		6 h 59 m		15 h 54 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Acrux	-Arcturus	-Spica	-Regulus	+Pollux	+Procyon	+Mars	+Sun
0	63°37.2'	N 18°36.7'	10.0'	-10.2'	57.4'	87°39.8'	63°27.2'	61°51.5'	8°43.0'	29°00.7'	33°35.1'	53°32.0'	110°26.7'
1	78°06.2'	N 18°26.4'	10.0'	-10.4'	57.5'	87°20.8'	62°58.5'	61°18.4'	8°15.1'	29°33.8'	34°01.7'	54°03.8'	110°57.5'
2	92°35.3'	N 18°16.1'	10.1'	-10.5'	57.5'	87°01.8'	62°29.8'	60°45.2'	7°47.8'	30°07.0'	34°28.4'	54°35.7'	111°28.4'
3	107°04.3'	N 18°05.6'	10.1'	-10.6'	57.6'	86°42.8'	62°01.0'	60°12.1'		30°40.2'	34°55.4'	55°07.6'	111°59.3'
4	121°33.4'	N 17°55.0'	10.1'	-10.7'	57.6'	86°23.7'	61°32.3'	59°38.8'		31°13.5'	35°22.6'	55°39.5'	112°30.3'
5	136°02.5'	N 17°44.3'	10.1'	-10.8'	57.6'	86°04.7'	61°03.6'	59°05.6'		31°46.8'	35°50.0'	56°11.5'	113°01.3'
6	150°31.6'	N 17°33.6'	10.1'	-10.9'	57.7'	85°45.6'	60°34.9'	58°32.2'		32°20.1'	36°17.5'	56°43.6'	113°32.4'
7	165°00.8'	N 17°22.7'	10.2'	-11.0'	57.7'	85°26.5'	60°06.2'	57°58.9'		32°53.6'	36°45.2'	57°15.7'	114°03.5'
8	179°29.9'	N 17°11.6'	10.2'	-11.1'	57.8'	85°07.4'	59°37.5'	57°25.5'		33°27.0'	37°13.2'	57°47.8'	114°34.6'
9	193°59.1'	N 17°00.5'	10.2'	-11.2'	57.8'	84°48.4'	59°08.8'	56°52.0'		34°00.6'	37°41.3'	58°20.0'	115°05.8'
10	208°28.3'	N 16°49.3'	10.2'	-11.3'	57.8'	84°29.2'	58°40.2'	56°18.5'		34°34.2'	38°09.5'	58°52.2'	115°37.1'
11	222°57.5'	N 16°38.0'	10.2'	-11.4'	57.9'	84°10.1'	58°11.5'	55°45.0'		35°07.8'	38°37.9'	59°24.5'	116°08.4'
12	237°26.7'	N 16°26.5'	10.2'	-11.5'	57.9'	83°51.0'	57°42.9'	55°11.4'		35°41.5'	39°06.5'	59°56.9'	116°39.8'
13	251°56.0'	N 16°15.0'	10.3'	-11.6'	58.0'	83°31.9'	57°14.3'	54°37.8'		36°15.2'	39°35.3'	60°29.3'	117°11.2'
14	266°25.2'	N 16°03.4'	10.3'	-11.7'	58.0'	83°12.8'	56°45.7'	54°04.1'		36°49.0'	40°04.2'	61°01.7'	117°42.6'
15	280°54.5'	N 15°51.6'	10.3'	-11.8'	58.0'	82°53.7'	56°17.1'	53°30.4'		37°22.9'	40°33.2'	61°34.2'	118°14.1'
16	295°23.8'	N 15°39.8'	10.3'	-11.9'	58.1'	82°34.6'	55°48.6'	52°56.6'		37°56.8'	41°02.4'	62°06.7'	118°45.7'
17	309°53.1'	N 15°27.8'	10.3'	-12.0'	58.1'	82°15.4'	55°20.0'	52°22.8'		38°30.7'	41°31.8'	62°39.3'	119°17.3'
18	324°22.5'	N 15°15.8'	10.3'	-12.1'	58.2'	81°56.3'	54°51.5'	51°48.9'		39°04.7'	42°01.3'	63°11.9'	119°48.9'
19	338°51.8'	N 15°03.7'	10.4'	-12.2'	58.2'	81°37.2'	54°23.1'	51°15.0'		39°38.8'	42°30.9'	63°44.6'	
20	353°21.2'	N 14°51.4'	10.4'	-12.3'	58.2'	81°18.1'	53°54.7'	50°41.1'		40°12.9'	43°00.6'	64°17.4'	
21	7°50.6'	N 14°39.1'	10.4'	-12.4'	58.3'	80°59.0'	53°26.3'	50°07.1'		40°47.1'	43°30.5'	64°50.1'	
22	22°19.9'	N 14°26.7'	10.4'	-12.5'	58.3'	80°39.9'	52°57.9'	49°33.1'		41°21.3'	44°00.5'	65°23.0'	
23	36°49.3'	N 14°14.1'	10.4'	-12.6'	58.4'	80°20.9'	52°29.6'	48°59.0'		41°55.6'	44°30.7'	65°55.9'	
Mer. pass.		20 h 28 m SD 15.7'		phase 67%									

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°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.6'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	S 60°55.3'	Adhara	+1.5	255°08.4'	S 29°00.3'	Achernar	+0.5	335°23.1'	S 57°07.9'
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°54.0'	S 52°42.7'				

Friday 23 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec		GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	211°15.4'	180°24.3'	N 12°32.0'	173°16.7'	N 14°15.4'	241°38.8'	S 13°08.1'	255°51.2'	S 17°30.9'	121°35.1'	N 24°53.9'			
1	226°17.9'	195°24.4'	N 12°32.9'	188°16.2'	N 14°16.4'	256°40.9'	S 13°08.0'	270°53.6'	S 17°30.9'	136°35.9'	N 24°53.9'			
2	241°20.3'	210°24.5'	N 12°33.7'	203°15.6'	N 14°17.5'	271°43.0'	S 13°07.9'	285°55.9'	S 17°30.9'	151°36.7'	N 24°53.9'			
3	256°22.8'	225°24.6'	N 12°34.5'	218°15.1'	N 14°18.5'	286°45.1'	S 13°07.8'	300°58.3'	S 17°30.8'	166°37.5'	N 24°53.9'			
4	271°25.3'	240°24.8'	N 12°35.4'	233°14.6'	N 14°19.6'	301°47.1'	S 13°07.6'	316°00.6'	S 17°30.8'	181°38.3'	N 24°53.9'			
5	286°27.7'	255°24.9'	N 12°36.2'	248°14.0'	N 14°20.6'	316°49.2'	S 13°07.5'	331°02.9'	S 17°30.8'	196°39.1'	N 24°53.9'			
6	301°30.2'	270°25.0'	N 12°37.0'	263°13.5'	N 14°21.7'	331°51.3'	S 13°07.4'	346°05.3'	S 17°30.8'	211°39.9'	N 24°53.9'			
7	316°32.7'	285°25.1'	N 12°37.9'	278°13.0'	N 14°22.7'	346°53.4'	S 13°07.2'	1°07.6'	S 17°30.7'	226°40.7'	N 24°53.9'			
8	331°35.1'	300°25.2'	N 12°38.7'	293°12.4'	N 14°23.8'	1°55.5'	S 13°07.1'	16°10.0'	S 17°30.7'	241°41.5'	N 24°53.9'			
9	346°37.6'	315°25.3'	N 12°39.5'	308°11.9'	N 14°24.8'	16°57.5'	S 13°07.0'	31°12.3'	S 17°30.7'	256°42.3'	N 24°53.9'			
10	1°40.1'	330°25.5'	N 12°40.4'	323°11.4'	N 14°25.9'	31°59.6'	S 13°06.9'	46°14.7'	S 17°30.6'	271°43.1'	N 24°53.9'			
11	16°42.5'	345°25.6'	N 12°41.2'	338°10.8'	N 14°26.9'	47°01.7'	S 13°06.7'	61°17.0'	S 17°30.6'	286°43.9'	N 24°53.9'			
12	31°45.0'	0°25.7'	N 12°42.0'	353°10.3'	N 14°27.9'	62°03.8'	S 13°06.6'	76°19.3'	S 17°30.6'	301°44.7'	N 24°53.9'			
13	46°47.4'	15°25.8'	N 12°42.8'	8°09.8'	N 14°29.0'	77°05.9'	S 13°06.5'	91°21.7'	S 17°30.6'	316°45.5'	N 24°53.9'			
14	61°49.9'	30°25.9'	N 12°43.7'	23°09.2'	N 14°30.0'	92°07.9'	S 13°06.3'	106°24.0'	S 17°30.5'	331°46.3'	N 24°53.9'			
15	76°52.4'	45°26.0'	N 12°44.5'	38°08.7'	N 14°31.1'	107°10.0'	S 13°06.2'	121°26.4'	S 17°30.5'	346°47.1'	N 24°53.9'			
16	91°54.8'	60°26.2'	N 12°45.3'	53°08.1'	N 14°32.1'	122°12.1'	S 13°06.1'	136°28.7'	S 17°30.5'	1°47.8'	N 24°53.9'			
17	106°57.3'	75°26.3'	N 12°46.1'	68°07.6'	N 14°33.2'	137°14.2'	S 13°06.0'	151°31.1'	S 17°30.4'	16°48.6'	N 24°53.9'			
18	121°59.8'	90°26.4'	N 12°47.0'	83°07.1'	N 14°34.2'	152°16.3'	S 13°05.8'	166°33.4'	S 17°30.4'	31°49.4'	N 24°53.9'			
19	137°02.2'	105°26.5'	N 12°47.8'	98°06.5'	N 14°35.2'	167°18.4'	S 13°05.7'	181°35.8'	S 17°30.4'	46°50.2'	N 24°53.9'			
20	152°04.7'	120°26.6'	N 12°48.6'	113°06.0'	N 14°36.3'	182°20.4'	S 13°05.6'	196°38.1'	S 17°30.4'	61°51.0'	N 24°53.8'			
21	167°07.2'	135°26.7'	N 12°49.4'	128°05.4'	N 14°37.3'	197°22.5'	S 13°05.5'	211°40.4'	S 17°30.3'	76°51.8'	N 24°53.8'			
22	182°09.6'	150°26.8'	N 12°50.3'	143°04.9'	N 14°38.4'	212°24.6'	S 13°05.3'	226°42.8'	S 17°30.3'	91°52.6'	N 24°53.8'			
23	197°12.1'	165°27.0'	N 12°51.1'	158°04.4'	N 14°39.4'	227°26.7'	S 13°05.2'	241°45.1'	S 17°30.3'	106°53.4'	N 24°53.8'			
		SD 15.9' d 0.8'		v -0.5' d 1.0'		v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.0'				
Mer. pass.		11 h 58 m 18 s		12 h 27 m		7 h 52 m		6 h 56 m		15 h 53 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	51°18.8'	N 14°01.5'	10.4'	-12.7'	58.4'	84°59.0'	80°01.8'	52°01.4'	48°24.9'		42°29.9'	45°01.0'	65°22.9'
1	65°48.2'	N 13°48.8'	10.4'	-12.8'	58.4'	84°34.9'	79°42.8'	51°33.2'	47°50.7'		43°04.3'	45°31.3'	65°46.1'
2	80°17.6'	N 13°36.0'	10.5'	-12.9'	58.5'	84°10.8'	79°23.7'	51°05.0'	47°16.5'	8°38.0'	43°38.7'	46°01.9'	66°09.5'
3	94°47.1'	N 13°23.1'	10.5'	-13.0'	58.5'	83°46.7'	79°04.7'	50°36.9'	46°42.2'	9°07.5'	44°13.2'	46°32.5'	66°33.0'
4	109°16.6'	N 13°10.1'	10.5'	-13.1'	58.6'	83°22.6'	78°45.7'	50°08.9'	46°07.9'	9°37.6'	44°47.7'	47°03.2'	66°56.6'
5	123°46.0'	N 12°57.0'	10.5'	-13.2'	58.6'	82°58.4'	78°26.8'	49°40.9'	45°33.6'	10°08.2'	45°22.3'	47°34.1'	67°20.3'
6	138°15.5'	N 12°43.9'	10.5'	-13.3'	58.6'	82°34.3'	78°07.8'	49°12.9'	44°59.2'	10°39.3'	45°56.9'	48°05.0'	67°44.1'
7	152°45.0'	N 12°30.6'	10.5'	-13.3'	58.7'	82°10.1'	77°48.9'	48°45.1'	44°24.8'	11°10.8'	46°31.6'	48°36.1'	68°08.0'
8	167°14.5'	N 12°17.3'	10.5'	-13.4'	58.7'	81°45.9'	77°30.0'	48°17.3'	43°50.3'	11°42.6'	47°06.4'	49°07.3'	68°32.0'
9	181°44.1'	N 12°03.8'	10.5'	-13.5'	58.8'	81°21.7'	77°11.1'	47°49.6'	43°15.8'	12°14.8'	47°41.2'	49°38.6'	68°56.2'
10	196°13.6'	N 11°50.3'	10.5'	-13.6'	58.8'	80°57.5'	76°52.3'	47°22.0'	42°41.3'	12°47.2'	48°16.0'	50°10.0'	69°20.4'
11	210°43.1'	N 11°36.7'	10.5'	-13.7'	58.8'	80°33.3'	76°33.5'	46°54.4'	42°06.7'	13°19.9'	48°50.9'	50°41.5'	69°44.8'
12	225°12.7'	N 11°23.1'	10.5'	-13.8'	58.9'	80°09.1'	76°14.7'	46°27.0'	41°32.1'	13°52.8'	49°25.8'	51°13.1'	70°09.2'
13	239°42.2'	N 11°09.3'	10.6'	-13.8'	58.9'	79°44.9'	75°56.0'	45°59.6'	40°57.4'	14°26.0'	50°00.8'	51°44.7'	70°33.8'
14	254°11.8'	N 10°55.5'	10.6'	-13.9'	59.0'	79°20.7'	75°37.3'	45°32.4'	40°22.7'	14°59.3'	50°35.9'	52°16.5'	70°58.4'
15	268°41.3'	N 10°41.6'	10.6'	-14.0'	59.0'	78°56.5'	75°18.6'	45°05.2'	39°47.9'	15°32.8'	51°11.0'	52°48.4'	71°23.2'
16	283°10.9'	N 10°27.6'	10.6'	-14.1'	59.0'	78°32.3'	75°00.0'	44°38.2'	39°13.2'	16°06.5'	51°46.1'	53°20.4'	71°48.0'
17	297°40.4'	N 10°13.5'	10.6'	-14.1'	59.1'	78°08.1'	74°41.4'	44°11.2'	38°38.3'	16°40.3'	52°21.3'	53°52.4'	72°12.9'
18	312°10.0'	N 9°59.4'	10.6'	-14.2'	59.1'	77°43.9'	74°22.9'	43°44.4'	38°03.5'	17°14.3'	52°56.6'	54°24.6'	72°38.0'
19	326°39.6'	N 9°45.2'	10.6'	-14.3'	59.2'	77°19.7'	74°04.4'	43°17.7'	37°28.6'	17°48.3'	53°31.9'	54°56.8'	73°03.1'
20	341°09.2'	N 9°30.9'	10.6'	-14.4'	59.2'	76°55.5'	73°46.0'	42°51.2'	36°53.7'	18°22.6'	54°07.2'	55°29.2'	73°28.3'
21	355°38.7'	N 9°16.5'	10.6'	-14.4'	59.2'	76°31.4'	73°27.6'	42°24.7'	36°18.7'	18°56.9'	54°42.6'	56°01.6'	73°53.6'
22	10°08.3'	N 9°02.1'	10.6'	-14.5'	59.3'	76°07.2'	73°09.3'	41°58.5'	35°43.7'	19°31.4'	55°18.1'	56°34.1'	74°19.0'
23	24°37.9'	N 8°47.6'	10.6'	-14.6'	59.3'	75°43.1'	72°51.0'	41°32.3'	35°08.7'	20°05.9'	55°53.6'	57°06.7'	74°44.5'
Mer. pass.		21 h 18 m SD 15.9'		phase 77%									

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°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.5'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.7'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	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°54.0'	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	212°14.5'	180°27.1'	N 12°51.9'	173°03.8'	N 14°40.4'		242°28.8'	S 13°05.1'	256°47.5'	S 17°30.2'	121°54.2'	N 24°53.8'		
1	227°17.0'	195°27.2'	N 12°52.7'	188°03.3'	N 14°41.5'		257°30.9'	S 13°05.0'	271°49.8'	S 17°30.2'	136°55.0'	N 24°53.8'		
2	242°19.5'	210°27.3'	N 12°53.6'	203°02.7'	N 14°42.5'		272°32.9'	S 13°04.8'	286°52.2'	S 17°30.2'	151°55.8'	N 24°53.8'		
3	257°21.9'	225°27.4'	N 12°54.4'	218°02.2'	N 14°43.5'		287°35.0'	S 13°04.7'	301°54.5'	S 17°30.2'	166°56.6'	N 24°53.8'		
4	272°24.4'	240°27.5'	N 12°55.2'	233°01.7'	N 14°44.6'		302°37.1'	S 13°04.6'	316°56.9'	S 17°30.1'	181°57.4'	N 24°53.8'		
5	287°26.9'	255°27.6'	N 12°56.0'	248°01.1'	N 14°45.6'		317°39.2'	S 13°04.4'	331°59.2'	S 17°30.1'	196°58.2'	N 24°53.8'		
6	302°29.3'	270°27.7'	N 12°56.8'	263°00.6'	N 14°46.6'		332°41.3'	S 13°04.3'	347°01.5'	S 17°30.1'	211°59.0'	N 24°53.8'		
7	317°31.8'	285°27.9'	N 12°57.7'	278°00.0'	N 14°47.7'		347°43.4'	S 13°04.2'	2°03.9'	S 17°30.1'	226°59.7'	N 24°53.8'		
8	332°34.3'	300°28.0'	N 12°58.5'	292°59.5'	N 14°48.7'		2°45.4'	S 13°04.1'	17°06.2'	S 17°30.0'	242°00.5'	N 24°53.7'		
9	347°36.7'	315°28.1'	N 12°59.3'	307°58.9'	N 14°49.7'		17°47.5'	S 13°03.9'	32°08.6'	S 17°30.0'	257°01.3'	N 24°53.7'		
10	2°39.2'	330°28.2'	N 13°00.1'	322°58.4'	N 14°50.8'		32°49.6'	S 13°03.8'	47°10.9'	S 17°30.0'	272°02.1'	N 24°53.7'		
11	17°41.7'	345°28.3'	N 13°00.9'	337°57.8'	N 14°51.8'		47°51.7'	S 13°03.7'	62°13.3'	S 17°29.9'	287°02.9'	N 24°53.7'		
12	32°44.1'	0°28.4'	N 13°01.8'	352°57.3'	N 14°52.8'		62°53.8'	S 13°03.6'	77°15.6'	S 17°29.9'	302°03.7'	N 24°53.7'		
13	47°46.6'	15°28.5'	N 13°02.6'	7°56.7'	N 14°53.9'		77°55.9'	S 13°03.4'	92°18.0'	S 17°29.9'	317°04.5'	N 24°53.7'		
14	62°49.0'	30°28.6'	N 13°03.4'	22°56.2'	N 14°54.9'		92°58.0'	S 13°03.3'	107°20.3'	S 17°29.9'	332°05.3'	N 24°53.7'		
15	77°51.5'	45°28.7'	N 13°04.2'	37°55.6'	N 14°55.9'		108°00.0'	S 13°03.2'	122°22.7'	S 17°29.8'	347°06.1'	N 24°53.7'		
16	92°54.0'	60°28.9'	N 13°05.0'	52°55.1'	N 14°56.9'		123°02.1'	S 13°03.1'	137°25.0'	S 17°29.8'	2°06.9'	N 24°53.7'		
17	107°56.4'	75°29.0'	N 13°05.9'	67°54.6'	N 14°58.0'		138°04.2'	S 13°02.9'	152°27.4'	S 17°29.8'	17°07.7'	N 24°53.6'		
18	122°58.9'	90°29.1'	N 13°06.7'	82°54.0'	N 14°59.0'		153°06.3'	S 13°02.8'	167°29.7'	S 17°29.8'	32°08.5'	N 24°53.6'		
19	138°01.4'	105°29.2'	N 13°07.5'	97°53.5'	N 15°00.0'		168°08.4'	S 13°02.7'	182°32.1'	S 17°29.7'	47°09.3'	N 24°53.6'		
20	153°03.8'	120°29.3'	N 13°08.3'	112°52.9'	N 15°01.1'		183°10.5'	S 13°02.6'	197°34.4'	S 17°29.7'	62°10.1'	N 24°53.6'		
21	168°06.3'	135°29.4'	N 13°09.1'	127°52.4'	N 15°02.1'		198°12.6'	S 13°02.4'	212°36.8'	S 17°29.7'	77°10.9'	N 24°53.6'		
22	183°08.8'	150°29.5'	N 13°09.9'	142°51.8'	N 15°03.1'		213°14.7'	S 13°02.3'	227°39.1'	S 17°29.6'	92°11.6'	N 24°53.6'		
23	198°11.2'	165°29.6'	N 13°10.7'	157°51.3'	N 15°04.1'		228°16.7'	S 13°02.2'	242°41.5'	S 17°29.6'	107°12.4'	N 24°53.6'		
		SD 15.9' d 0.8'		v -0.5' d 1.0'			v 2.1' d 0.1'		v 2.3' d 0.0'		v 0.8' d -0.0'			
Mer. pass.		11 h 58 m 7 s		12 h 28 m			7 h 49 m		6 h 52 m		15 h 52 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Hadar	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Sirius
0	39°07.4'	N 8°33.0'	10.6'	-14.6'	59.3'	75°19.0'	72°32.8'	41°06.4'	34°33.6'	20°40.6'	56°29.1'	57°39.4'	75°10.0'
1	53°37.0'	N 8°18.4'	10.6'	-14.7'	59.4'	74°54.9'	72°14.7'	40°40.6'	33°58.5'	21°15.3'	57°04.7'	58°12.1'	75°35.6'
2	68°06.6'	N 8°03.7'	10.6'	-14.8'	59.4'	74°30.8'	71°56.6'	40°15.0'	33°23.4'	21°50.2'	57°40.4'	58°44.9'	76°01.4'
3	82°36.1'	N 7°49.0'	10.6'	-14.8'	59.5'	74°06.8'	71°38.6'	39°49.5'	32°48.3'	22°25.1'	58°16.1'	59°17.9'	76°27.2'
4	97°05.7'	N 7°34.2'	10.6'	-14.9'	59.5'	73°42.8'	71°20.6'	39°24.2'	32°13.1'	23°00.2'	58°51.8'	59°50.8'	76°53.0'
5	111°35.2'	N 7°19.3'	10.5'	-14.9'	59.5'	73°18.8'	71°02.8'	38°59.2'	31°37.9'	23°35.3'	59°27.6'	60°23.9'	77°19.0'
6	126°04.8'	N 7°04.3'	10.5'	-15.0'	59.6'	72°54.8'	70°45.0'	38°34.3'	31°02.7'	24°10.5'	60°03.4'	60°57.0'	77°45.0'
7	140°34.3'	N 6°49.3'	10.5'	-15.1'	59.6'	72°30.9'	70°27.2'	38°09.7'	30°27.5'	24°45.8'	60°39.3'	61°30.3'	78°11.1'
8	155°03.8'	N 6°34.3'	10.5'	-15.1'	59.6'	72°07.0'	70°09.6'	37°45.3'	29°52.2'	25°21.1'	61°15.3'	62°03.5'	78°37.3'
9	169°33.4'	N 6°19.2'	10.5'	-15.2'	59.7'	71°43.1'	69°52.0'	37°21.1'	29°16.9'	25°56.5'	61°51.3'	62°36.9'	79°03.5'
10	184°02.9'	N 6°04.0'	10.5'	-15.2'	59.7'	71°19.3'	69°34.5'	36°57.2'	28°41.6'	26°32.0'	62°27.3'	63°10.3'	79°29.8'
11	198°32.4'	N 5°48.8'	10.5'	-15.3'	59.8'	70°55.5'	69°17.1'	36°33.5'	28°06.3'	27°07.6'	63°03.4'	63°43.8'	79°56.2'
12	213°01.9'	N 5°33.5'	10.5'	-15.3'	59.8'	70°31.8'	68°59.8'	36°10.1'	27°31.0'	27°43.2'	63°39.5'	64°17.4'	80°22.6'
13	227°31.3'	N 5°18.2'	10.5'	-15.4'	59.8'	70°08.1'	68°42.6'	35°47.0'	26°55.7'	28°18.9'	64°15.7'	64°51.0'	80°49.1'
14	242°00.8'	N 5°02.8'	10.4'	-15.4'	59.9'	69°44.5'	68°25.5'	35°24.1'	26°20.3'	28°54.7'	64°51.9'	65°24.7'	81°15.7'
15	256°30.2'	N 4°47.4'	10.4'	-15.5'	59.9'	69°20.9'	68°08.5'	35°01.6'	25°45.0'	29°30.5'	65°28.1'	65°58.5'	81°42.3'
16	270°59.7'	N 4°32.0'	10.4'	-15.5'	59.9'	68°57.4'	67°51.5'	34°39.4'	25°09.7'	30°06.4'	66°04.4'	66°32.3'	82°09.0'
17	285°29.1'	N 4°16.5'	10.4'	-15.5'	60.0'	68°33.9'	67°34.7'	34°17.4'	24°34.3'	30°42.4'	66°40.8'	67°06.2'	82°35.7'
18	299°58.5'	N 4°00.9'	10.4'	-15.6'	60.0'	68°10.5'	67°18.0'	33°55.9'	23°59.0'	31°18.4'	67°17.2'	67°40.2'	83°02.5'
19	314°27.9'	N 3°45.3'	10.4'	-15.6'	60.0'	67°47.1'	67°01.4'	33°34.7'	23°23.7'	31°54.5'	67°53.6'	68°14.2'	83°29.3'
20	328°57.2'	N 3°29.7'	10.3'	-15.7'	60.1'	67°23.9'	66°44.9'	33°13.8'	22°48.4'	32°30.6'	68°30.1'	68°48.3'	83°56.2'
21	343°26.6'	N 3°14.0'	10.3'	-15.7'	60.1'	67°00.7'	66°28.5'	32°53.4'	22°13.2'	33°06.8'	69°06.6'	69°22.4'	84°23.2'
22	357°55.9'	N 2°58.3'	10.3'	-15.7'	60.1'	66°37.5'	66°12.2'	32°33.3'	21°37.9'	33°43.0'	69°43.2'	69°56.6'	84°50.1'
23	12°25.2'	N 2°42.6'	10.3'	-15.8'	60.2'	66°14.5'	65°56.1'	32°13.6'	21°02.7'	34°19.3'	70°19.8'	70°30.9'	85°17.2'
Mer. pass.		22 h 9 m SD 16.2' phase 86%											

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°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.8'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	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°54.0'	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	213°13.7'	180°29.7'	N 13°11.6'	172°50.7'	N 15°05.1'		243°18.8'	S 13°02.1'	257°43.8'	S 17°29.6'	122°13.2'	N 24°53.5'		
1	228°16.1'	195°29.8'	N 13°12.4'	187°50.1'	N 15°06.2'		258°20.9'	S 13°01.9'	272°46.1'	S 17°29.6'	137°14.0'	N 24°53.5'		
2	243°18.6'	210°29.9'	N 13°13.2'	202°49.6'	N 15°07.2'		273°23.0'	S 13°01.8'	287°48.5'	S 17°29.5'	152°14.8'	N 24°53.5'		
3	258°21.1'	225°30.1'	N 13°14.0'	217°49.0'	N 15°08.2'		288°25.1'	S 13°01.7'	302°50.8'	S 17°29.5'	167°15.6'	N 24°53.5'		
4	273°23.5'	240°30.2'	N 13°14.8'	232°48.5'	N 15°09.2'		303°27.2'	S 13°01.6'	317°53.2'	S 17°29.5'	182°16.4'	N 24°53.5'		
5	288°26.0'	255°30.3'	N 13°15.6'	247°47.9'	N 15°10.2'		318°29.3'	S 13°01.4'	332°55.5'	S 17°29.5'	197°17.2'	N 24°53.5'		
6	303°28.5'	270°30.4'	N 13°16.4'	262°47.4'	N 15°11.3'		333°31.4'	S 13°01.3'	347°57.9'	S 17°29.4'	212°18.0'	N 24°53.4'		
7	318°30.9'	285°30.5'	N 13°17.3'	277°46.8'	N 15°12.3'		348°33.5'	S 13°01.2'	3°00.2'	S 17°29.4'	227°18.8'	N 24°53.4'		
8	333°33.4'	300°30.6'	N 13°18.1'	292°46.3'	N 15°13.3'		3°35.5'	S 13°01.1'	18°02.6'	S 17°29.4'	242°19.6'	N 24°53.4'		
9	348°35.9'	315°30.7'	N 13°18.9'	307°45.7'	N 15°14.3'		18°37.6'	S 13°00.9'	33°04.9'	S 17°29.4'	257°20.4'	N 24°53.4'		
10	3°38.3'	330°30.8'	N 13°19.7'	322°45.2'	N 15°15.3'		33°39.7'	S 13°00.8'	48°07.3'	S 17°29.3'	272°21.2'	N 24°53.4'		
11	18°40.8'	345°30.9'	N 13°20.5'	337°44.6'	N 15°16.3'		48°41.8'	S 13°00.7'	63°09.6'	S 17°29.3'	287°22.0'	N 24°53.4'		
12	33°43.3'	0°31.0'	N 13°21.3'	352°44.0'	N 15°17.4'		63°43.9'	S 13°00.6'	78°12.0'	S 17°29.3'	302°22.7'	N 24°53.3'		
13	48°45.7'	15°31.1'	N 13°22.1'	7°43.5'	N 15°18.4'		78°46.0'	S 13°00.4'	93°14.3'	S 17°29.2'	317°23.5'	N 24°53.3'		
14	63°48.2'	30°31.2'	N 13°22.9'	22°42.9'	N 15°19.4'		93°48.1'	S 13°00.3'	108°16.7'	S 17°29.2'	332°24.3'	N 24°53.3'		
15	78°50.6'	45°31.3'	N 13°23.7'	37°42.4'	N 15°20.4'		108°50.2'	S 13°00.2'	123°19.0'	S 17°29.2'	347°25.1'	N 24°53.3'		
16	93°53.1'	60°31.4'	N 13°24.5'	52°41.8'	N 15°21.4'		123°52.3'	S 13°00.1'	138°21.4'	S 17°29.2'	2°25.9'	N 24°53.3'		
17	108°55.6'	75°31.5'	N 13°25.3'	67°41.2'	N 15°22.4'		138°54.4'	S 12°60.0'	153°23.8'	S 17°29.1'	17°26.7'	N 24°53.2'		
18	123°58.0'	90°31.6'	N 13°26.2'	82°40.7'	N 15°23.4'		153°56.5'	S 12°59.8'	168°26.1'	S 17°29.1'	32°27.5'	N 24°53.2'		
19	139°00.5'	105°31.8'	N 13°27.0'	97°40.1'	N 15°24.4'		168°58.6'	S 12°59.7'	183°28.5'	S 17°29.1'	47°28.3'	N 24°53.2'		
20	154°03.0'	120°31.9'	N 13°27.8'	112°39.6'	N 15°25.4'		184°00.6'	S 12°59.6'	198°30.8'	S 17°29.1'	62°29.1'	N 24°53.2'		
21	169°05.4'	135°32.0'	N 13°28.6'	127°39.0'	N 15°26.5'		199°02.7'	S 12°59.5'	213°33.2'	S 17°29.0'	77°29.9'	N 24°53.2'		
22	184°07.9'	150°32.1'	N 13°29.4'	142°38.4'	N 15°27.5'		214°04.8'	S 12°59.3'	228°35.5'	S 17°29.0'	92°30.7'	N 24°53.1'		
23	199°10.4'	165°32.2'	N 13°30.2'	157°37.9'	N 15°28.5'		229°06.9'	S 12°59.2'	243°37.9'	S 17°29.0'	107°31.5'	N 24°53.1'		
		SD 15.9' d 0.8'		v -0.6' d 1.0'			v 2.1' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.0'			
Mer. pass.		11 h 57 m 57 s		12 h 29 m			7 h 46 m		6 h 48 m		15 h 50 m			

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Antares	-Acrux	-Arcturus	-Spica	+Regulus	+Pollux	+Procyon	+Adhara
0	26°54.5'	N 2°26.8'	10.3'	-15.8'	60.2'	65°49.1'	65°40.0'	31°54.4'	20°27.5'	34°55.6'	70°56.4'	71°05.2'	83°44.4'
1	41°23.7'	N 2°11.0'	10.2'	-15.8'	60.2'	65°12.5'	65°24.1'	31°35.6'	19°52.4'	35°32.0'	71°33.1'	71°39.5'	84°05.5'
2	55°52.9'	N 1°55.2'	10.2'	-15.9'	60.3'	64°35.9'	65°08.4'	31°17.3'	19°17.4'	36°08.5'	72°09.9'	72°14.0'	84°26.6'
3	70°22.1'	N 1°39.4'	10.2'	-15.9'	60.3'	63°59.2'	64°52.7'	30°59.4'	18°42.4'	36°45.0'	72°46.6'	72°48.4'	84°47.9'
4	84°51.3'	N 1°23.5'	10.1'	-15.9'	60.3'	63°22.5'	64°37.2'	30°42.0'	18°07.5'	37°21.5'	73°23.5'	73°23.0'	85°09.1'
5	99°20.4'	N 1°07.6'	10.1'	-15.9'	60.3'	62°45.7'	64°21.9'	30°25.1'	17°32.7'	37°58.1'	74°00.3'	73°57.5'	85°30.4'
6	113°49.6'	N 0°51.6'	10.1'	-16.0'	60.4'	62°08.9'	64°06.6'	30°08.8'	16°58.0'	38°34.8'	74°37.2'	74°32.2'	85°51.7'
7	128°18.6'	N 0°35.7'	10.1'	-16.0'	60.4'	61°32.1'		29°53.0'	16°23.4'	39°11.4'	75°14.1'	75°06.8'	86°13.1'
8	142°47.7'	N 0°19.7'	10.0'	-16.0'	60.4'	60°55.2'			15°49.0'	39°48.2'	75°51.1'	75°41.5'	86°34.5'
9	157°16.7'	N 0°03.7'	10.0'	-16.0'	60.5'	60°18.3'			15°14.7'	40°24.9'	76°28.1'	76°16.3'	86°56.0'
10	171°45.7'	S 0°12.3'	10.0'	-16.0'	60.5'	59°41.4'			14°40.6'	41°01.8'	77°05.2'	76°51.1'	87°17.5'
11	186°14.7'	S 0°28.3'	9.9'	-16.0'	60.5'	59°04.4'			14°06.7'	41°38.6'	77°42.2'	77°26.0'	87°39.0'
12	200°43.6'	S 0°44.4'	9.9'	-16.0'	60.5'	58°27.4'			13°33.1'	42°15.5'	78°19.4'	78°00.9'	88°00.6'
13	215°12.5'	S 1°00.4'	9.8'	-16.1'	60.6'	57°50.3'			12°59.8'	42°52.5'	78°56.5'	78°35.9'	88°22.2'
14	229°41.3'	S 1°16.5'	9.8'	-16.1'	60.6'	57°13.3'			12°26.7'	43°29.5'	79°33.7'	79°10.8'	88°43.8'
15	244°10.1'	S 1°32.5'	9.8'	-16.1'	60.6'	56°36.2'			11°54.1'	44°06.5'	80°10.9'	79°45.9'	89°05.4'
16	258°38.9'	S 1°48.6'	9.7'	-16.1'	60.7'	55°59.0'			11°21.9'	44°43.6'	80°48.2'	80°20.9'	89°27.1'
17	273°07.7'	S 2°04.7'	9.7'	-16.1'	60.7'	55°21.9'			10°50.2'	45°20.7'	81°25.5'	80°56.1'	89°48.8'
18	287°36.3'	S 2°20.7'	9.7'	-16.1'	60.7'	54°44.7'			10°19.1'	45°57.8'	82°02.8'	81°31.2'	90°10.5'
19	302°05.0'	S 2°36.8'	9.6'	-16.1'	60.7'	54°07.4'				46°35.0'	82°40.1'	82°06.4'	90°32.2'
20	316°33.6'	S 2°52.9'	9.6'	-16.1'	60.8'	53°30.2'				47°12.2'	83°17.5'	82°41.6'	90°53.9'
21	331°02.2'	S 3°09.0'	9.5'	-16.1'	60.8'	52°52.9'				47°49.4'	83°54.9'	83°16.9'	91°15.7'
22	345°30.7'	S 3°25.0'	9.5'	-16.1'	60.8'	52°15.6'				48°26.7'	84°32.4'	83°52.2'	91°37.5'
23	359°59.2'	S 3°41.1'	9.4'	-16.1'	60.8'	51°38.3'				49°04.0'	85°09.9'	84°27.5'	91°59.2'
Mer. pass.		23 h 0 m SD 16.4' phase 93%											

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°27.9'	N 45°21.0'	Acrux	+0.8	173°02.8'	S 63°13.1'	Capella	+0.1	280°26.7'	N 46°01.2'
Altair	+0.8	62°02.9'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°53.9'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	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°54.0'	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	214°12.8'	180°32.3'	N 13°31.0'	172°37.3'	N 15°29.5'	244°09.0'	S 12°59.1'	258°40.2'	S 17°29.0'	122°32.3'	N 24°53.1'			
1	229°15.3'	195°32.4'	N 13°31.8'	187°36.8'	N 15°30.5'	259°11.1'	S 12°59.0'	273°42.6'	S 17°28.9'	137°33.1'	N 24°53.1'			
2	244°17.8'	210°32.5'	N 13°32.6'	202°36.2'	N 15°31.5'	274°13.2'	S 12°58.8'	288°44.9'	S 17°28.9'	152°33.8'	N 24°53.1'			
3	259°20.2'	225°32.6'	N 13°33.4'	217°35.6'	N 15°32.5'	289°15.3'	S 12°58.7'	303°47.3'	S 17°28.9'	167°34.6'	N 24°53.0'			
4	274°22.7'	240°32.7'	N 13°34.2'	232°35.1'	N 15°33.5'	304°17.4'	S 12°58.6'	318°49.6'	S 17°28.9'	182°35.4'	N 24°53.0'			
5	289°25.1'	255°32.8'	N 13°35.0'	247°34.5'	N 15°34.5'	319°19.5'	S 12°58.5'	333°52.0'	S 17°28.8'	197°36.2'	N 24°53.0'			
6	304°27.6'	270°32.9'	N 13°35.8'	262°33.9'	N 15°35.5'	334°21.6'	S 12°58.3'	348°54.3'	S 17°28.8'	212°37.0'	N 24°53.0'			
7	319°30.1'	285°33.0'	N 13°36.6'	277°33.4'	N 15°36.5'	349°23.7'	S 12°58.2'	3°56.7'	S 17°28.8'	227°37.8'	N 24°52.9'			
8	334°32.5'	300°33.1'	N 13°37.4'	292°32.8'	N 15°37.5'	4°25.8'	S 12°58.1'	18°59.0'	S 17°28.8'	242°38.6'	N 24°52.9'			
9	349°35.0'	315°33.2'	N 13°38.2'	307°32.2'	N 15°38.5'	19°27.9'	S 12°58.0'	34°01.4'	S 17°28.7'	257°39.4'	N 24°52.9'			
10	4°37.5'	330°33.3'	N 13°39.0'	322°31.7'	N 15°39.5'	34°30.0'	S 12°57.9'	49°03.7'	S 17°28.7'	272°40.2'	N 24°52.9'			
11	19°39.9'	345°33.4'	N 13°39.8'	337°31.1'	N 15°40.5'	49°32.1'	S 12°57.7'	64°06.1'	S 17°28.7'	287°41.0'	N 24°52.8'			
12	34°42.4'	0°33.5'	N 13°40.6'	352°30.5'	N 15°41.5'	64°34.2'	S 12°57.6'	79°08.5'	S 17°28.7'	302°41.8'	N 24°52.8'			
13	49°44.9'	15°33.6'	N 13°41.4'	7°30.0'	N 15°42.5'	79°36.3'	S 12°57.5'	94°10.8'	S 17°28.6'	317°42.6'	N 24°52.8'			
14	64°47.3'	30°33.7'	N 13°42.2'	22°29.4'	N 15°43.5'	94°38.3'	S 12°57.4'	109°13.2'	S 17°28.6'	332°43.4'	N 24°52.8'			
15	79°49.8'	45°33.8'	N 13°43.0'	37°28.8'	N 15°44.5'	109°40.4'	S 12°57.2'	124°15.5'	S 17°28.6'	347°44.1'	N 24°52.7'			
16	94°52.2'	60°33.9'	N 13°43.8'	52°28.3'	N 15°45.5'	124°42.5'	S 12°57.1'	139°17.9'	S 17°28.6'	2°44.9'	N 24°52.7'			
17	109°54.7'	75°34.0'	N 13°44.6'	67°27.7'	N 15°46.5'	139°44.6'	S 12°57.0'	154°20.2'	S 17°28.5'	17°45.7'	N 24°52.7'			
18	124°57.2'	90°34.1'	N 13°45.4'	82°27.1'	N 15°47.5'	154°46.7'	S 12°56.9'	169°22.6'	S 17°28.5'	32°46.5'	N 24°52.6'			
19	139°59.6'	105°34.2'	N 13°46.2'	97°26.5'	N 15°48.5'	169°48.8'	S 12°56.8'	184°24.9'	S 17°28.5'	47°47.3'	N 24°52.6'			
20	155°02.1'	120°34.3'	N 13°47.0'	112°26.0'	N 15°49.5'	184°50.9'	S 12°56.6'	199°27.3'	S 17°28.5'	62°48.1'	N 24°52.6'			
21	170°04.6'	135°34.4'	N 13°47.8'	127°25.4'	N 15°50.4'	199°53.0'	S 12°56.5'	214°29.7'	S 17°28.4'	77°48.9'	N 24°52.6'			
22	185°07.0'	150°34.5'	N 13°48.6'	142°24.8'	N 15°51.4'	214°55.1'	S 12°56.4'	229°32.0'	S 17°28.4'	92°49.7'	N 24°52.5'			
23	200°09.5'	165°34.6'	N 13°49.4'	157°24.3'	N 15°52.4'	229°57.2'	S 12°56.3'	244°34.4'	S 17°28.4'	107°50.5'	N 24°52.5'			
		SD 15.9' d 0.8'		v -0.6' d 1.0'		v 2.1' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.0'				
Mer. pass.		11 h 57 m 47 s		12 h 30 m		7 h 42 m		6 h 44 m		15 h 49 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Rigel Kent	-Hadar	-Antares	-Spica	+Regulus	+Procyon	+Pollux	+Adhara
0	14°27.6'	S 3°57.1'	9.4'	-16.0'	60.8'	59°02.8'	57°12.5'	51°00.9'	49°41.4'	85°02.8'	85°47.4'	92°21.0'	
1	28°56.0'	S 4°13.2'	9.3'	-16.0'	60.9'	58°40.4'	56°52.6'	50°23.5'	50°18.8'	85°38.2'	86°24.9'	92°42.8'	
2	43°24.3'	S 4°29.2'	9.3'	-16.0'	60.9'	58°18.2'	56°33.0'	49°46.1'	50°56.2'	86°13.6'	87°02.5'	93°04.6'	
3	57°52.6'	S 4°45.2'	9.2'	-16.0'	60.9'	57°56.1'	56°13.5'	49°08.7'	51°33.6'	86°49.1'	87°40.0'	93°26.4'	
4	72°20.8'	S 5°01.2'	9.2'	-16.0'	60.9'	57°34.1'	55°54.2'	48°31.2'	52°11.1'	87°24.5'	88°17.7'	93°48.2'	
5	86°49.0'	S 5°17.2'	9.1'	-16.0'	60.9'	57°12.3'	55°35.1'	47°53.8'	52°48.6'	88°00.0'	88°55.3'	94°09.9'	
6	101°17.1'	S 5°33.1'	9.1'	-15.9'	61.0'	56°50.7'	55°16.2'	47°16.3'	53°26.1'	88°35.6'	89°33.0'	94°31.7'	
7	115°45.2'	S 5°49.1'	9.0'	-15.9'	61.0'	56°29.2'	54°57.5'	46°38.8'	54°03.7'	89°11.1'	90°10.6'	94°53.5'	
8	130°13.2'	S 6°05.0'	9.0'	-15.9'	61.0'	56°07.9'	54°39.0'	46°01.2'	54°41.3'	89°46.7'	90°48.4'	95°15.3'	
9	144°41.2'	S 6°20.9'	8.9'	-15.9'	61.0'	55°46.8'	54°20.7'	45°23.7'	55°18.9'	90°22.3'	91°26.1'	95°37.0'	
10	159°09.1'	S 6°36.7'	8.9'	-15.8'	61.0'	55°25.9'	54°02.7'	44°46.1'	55°56.5'	90°57.9'	92°03.8'	95°58.7'	
11	173°37.0'	S 6°52.5'	8.8'	-15.8'	61.1'	55°05.2'	53°44.8'	44°08.5'	56°34.2'	91°33.5'	92°41.6'	96°20.4'	
12	188°04.8'	S 7°08.3'	8.7'	-15.8'	61.1'	54°44.6'	53°27.2'	43°30.9'	57°11.8'	92°09.2'	93°19.4'	96°42.1'	
13	202°32.5'	S 7°24.1'	8.7'	-15.7'	61.1'	54°24.3'	53°09.9'	42°53.3'	57°49.5'	92°44.8'	93°57.2'	97°03.8'	
14	217°00.2'	S 7°39.8'	8.6'	-15.7'	61.1'	54°04.1'	52°52.7'	42°15.7'	58°27.3'	93°20.5'	94°35.1'	97°25.5'	
15	231°27.8'	S 7°55.5'	8.6'	-15.6'	61.1'	53°44.2'	52°35.8'	41°38.1'	59°05.0'	93°56.2'	95°12.9'	97°47.1'	
16	245°55.4'	S 8°11.1'	8.5'	-15.6'	61.1'	53°24.4'	52°19.2'	41°00.4'	59°42.8'	94°31.9'	95°50.8'	98°08.7'	
17	260°22.9'	S 8°26.7'	8.4'	-15.6'	61.1'	53°04.9'	52°02.8'	40°22.8'	60°20.6'	95°07.6'	96°28.7'	98°30.2'	
18	274°50.3'	S 8°42.3'	8.4'	-15.5'	61.2'	52°45.7'	51°46.7'	39°45.1'	60°58.4'	95°43.4'	97°06.6'	98°51.8'	
19	289°17.7'	S 8°57.8'	8.3'	-15.5'	61.2'	52°26.6'	51°30.8'	39°07.4'	61°36.2'	96°19.1'	97°44.5'	99°13.3'	
20	303°45.0'	S 9°13.2'	8.2'	-15.4'	61.2'	52°07.8'	51°15.3'	38°29.8'	62°14.0'	96°54.9'	98°22.5'	99°34.7'	
21	318°12.2'	S 9°28.7'	8.2'	-15.4'	61.2'	51°49.2'	50°59.9'	37°52.1'	10°16.8'	62°51.9'	97°30.6'	99°56.1'	
22	332°39.4'	S 9°44.0'	8.1'	-15.3'	61.2'	51°30.9'		37°14.4'	10°48.4'	63°29.8'	98°06.4'	99°38.4'	
23	347°06.5'	S 9°59.3'	8.0'	-15.2'	61.2'	51°12.8'		36°36.7'	11°20.7'	64°07.6'	98°42.2'	100°16.4'	
Mer. pass.		23 h 54 m SD 16.6'		phase 98%									

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°27.9'	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°02.9'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	Pollux	+1.2	243°21.1'	N 27°58.5'	Aldebaran	+0.9	290°43.4'	N 16°33.0'
Antares	+1.1	112°19.3'	S 26°28.7'	Procyon	+0.4	244°54.1'	N 5°10.1'	Polaris	+2.0	315°54.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.8'	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°54.0'	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	215°12.0'	180°34.7'	N 13°50.2'	172°23.7'	N 15°53.4'	244°59.3'	S 12°56.1'	259°36.7'	S 17°28.4'	122°51.3'	N 24°52.5'			
1	230°14.4'	195°34.8'	N 13°51.0'	187°23.1'	N 15°54.4'	260°01.4'	S 12°56.0'	274°39.1'	S 17°28.3'	137°52.1'	N 24°52.4'			
2	245°16.9'	210°34.9'	N 13°51.8'	202°22.5'	N 15°55.4'	275°03.5'	S 12°55.9'	289°41.4'	S 17°28.3'	152°52.9'	N 24°52.4'			
3	260°19.4'	225°35.0'	N 13°52.6'	217°22.0'	N 15°56.4'	290°05.6'	S 12°55.8'	304°43.8'	S 17°28.3'	167°53.7'	N 24°52.4'			
4	275°21.8'	240°35.1'	N 13°53.4'	232°21.4'	N 15°57.4'	305°07.7'	S 12°55.7'	319°46.1'	S 17°28.3'	182°54.4'	N 24°52.4'			
5	290°24.3'	255°35.2'	N 13°54.2'	247°20.8'	N 15°58.4'	320°09.8'	S 12°55.5'	334°48.5'	S 17°28.2'	197°55.2'	N 24°52.3'			
6	305°26.7'	270°35.3'	N 13°55.0'	262°20.2'	N 15°59.3'	335°11.9'	S 12°55.4'	349°50.9'	S 17°28.2'	212°56.0'	N 24°52.3'			
7	320°29.2'	285°35.4'	N 13°55.8'	277°19.7'	N 16°00.3'	350°14.0'	S 12°55.3'	4°53.2'	S 17°28.2'	227°56.8'	N 24°52.3'			
8	335°31.7'	300°35.5'	N 13°56.6'	292°19.1'	N 16°01.3'	5°16.1'	S 12°55.2'	19°55.6'	S 17°28.2'	242°57.6'	N 24°52.2'			
9	350°34.1'	315°35.6'	N 13°57.3'	307°18.5'	N 16°02.3'	20°18.2'	S 12°55.1'	34°57.9'	S 17°28.1'	257°58.4'	N 24°52.2'			
10	5°36.6'	330°35.7'	N 13°58.1'	322°17.9'	N 16°03.3'	35°20.3'	S 12°54.9'	50°00.3'	S 17°28.1'	272°59.2'	N 24°52.2'			
11	20°39.1'	345°35.8'	N 13°58.9'	337°17.3'	N 16°04.3'	50°22.4'	S 12°54.8'	65°02.7'	S 17°28.1'	287°60.0'	N 24°52.1'			
12	35°41.5'	0°35.9'	N 13°59.7'	352°16.8'	N 16°05.2'	65°24.5'	S 12°54.7'	80°05.0'	S 17°28.1'	303°00.8'	N 24°52.1'			
13	50°44.0'	15°36.0'	N 14°00.5'	7°16.2'	N 16°06.2'	80°26.6'	S 12°54.6'	95°07.4'	S 17°28.0'	318°01.6'	N 24°52.1'			
14	65°46.5'	30°36.0'	N 14°01.3'	22°15.6'	N 16°07.2'	95°28.7'	S 12°54.4'	110°09.7'	S 17°28.0'	333°02.4'	N 24°52.0'			
15	80°48.9'	45°36.1'	N 14°02.1'	37°15.0'	N 16°08.2'	110°30.8'	S 12°54.3'	125°12.1'	S 17°28.0'	348°03.2'	N 24°52.0'			
16	95°51.4'	60°36.2'	N 14°02.9'	52°14.4'	N 16°09.2'	125°32.9'	S 12°54.2'	140°14.4'	S 17°28.0'	3°04.0'	N 24°52.0'			
17	110°53.8'	75°36.3'	N 14°03.7'	67°13.9'	N 16°10.1'	140°35.0'	S 12°54.1'	155°16.8'	S 17°27.9'	18°04.7'	N 24°51.9'			
18	125°56.3'	90°36.4'	N 14°04.5'	82°13.3'	N 16°11.1'	155°37.1'	S 12°54.0'	170°19.2'	S 17°27.9'	33°05.5'	N 24°51.9'			
19	140°58.8'	105°36.5'	N 14°05.2'	97°12.7'	N 16°12.1'	170°39.2'	S 12°53.8'	185°21.5'	S 17°27.9'	48°06.3'	N 24°51.9'			
20	156°01.2'	120°36.6'	N 14°06.0'	112°12.1'	N 16°13.1'	185°41.3'	S 12°53.7'	200°23.9'	S 17°27.9'	63°07.1'	N 24°51.8'			
21	171°03.7'	135°36.7'	N 14°06.8'	127°11.5'	N 16°14.0'	200°43.4'	S 12°53.6'	215°26.2'	S 17°27.8'	78°07.9'	N 24°51.8'			
22	186°06.2'	150°36.8'	N 14°07.6'	142°10.9'	N 16°15.0'	215°45.5'	S 12°53.5'	230°28.6'	S 17°27.8'	93°08.7'	N 24°51.8'			
23	201°08.6'	165°36.9'	N 14°08.4'	157°10.4'	N 16°16.0'	230°47.6'	S 12°53.4'	245°31.0'	S 17°27.8'	108°09.5'	N 24°51.7'			
		SD 15.9' d 0.8'		v -0.6' d 1.0'		v 2.1' d 0.1'		v 2.4' d 0.0'		v 0.8' d -0.0'				
Mer. pass.		11 h 57 m 38 s		12 h 31 m		7 h 39 m		6 h 41 m		15 h 48 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Saturn	-Altair	-Rigel Kent	-Antares	+Spica	+Arcturus	+Regulus	+Procyon
0	1°33.6'	S 10°14.5'	8.0'	-15.2'	61.2'	98°06.1'	86°03.4'	50°55.0'	35°59.0'	11°53.5'		64°45.5'	99°17.9'
1	16°00.6'	S 10°29.7'	7.9'	-15.1'	61.2'	97°28.2'	85°31.7'	50°37.4'	35°21.3'	12°26.8'	29°34.0'	65°23.4'	99°53.7'
2	30°27.5'	S 10°44.8'	7.8'	-15.1'	61.2'	96°50.4'	84°59.9'	50°20.1'	34°43.6'	13°00.5'	29°49.6'	66°01.4'	100°29.5'
3	44°54.3'	S 10°59.9'	7.8'	-15.0'	61.2'	96°12.5'	84°28.1'	50°03.1'	34°05.9'	13°34.7'	30°05.7'	66°39.3'	101°05.3'
4	59°21.1'	S 11°14.9'	7.7'	-14.9'	61.2'	95°34.6'	83°56.3'	49°46.3'	33°28.2'	14°09.2'	30°22.5'	67°17.2'	101°41.0'
5	73°47.8'	S 11°29.8'	7.6'	-14.9'	61.3'	94°56.7'	83°24.6'	49°29.9'	32°50.6'	14°43.9'	30°39.8'	67°55.2'	102°16.8'
6	88°14.4'	S 11°44.7'	7.6'	-14.8'	61.3'	94°18.8'	82°52.8'	49°13.7'	32°12.9'	15°19.0'	30°57.7'	68°33.2'	102°52.6'
7	102°41.0'	S 11°59.5'	7.5'	-14.7'	61.3'	93°40.9'	82°21.1'	48°57.9'	31°35.2'	15°54.2'	31°16.2'	69°11.1'	103°28.3'
8	117°07.5'	S 12°14.2'	7.4'	-14.6'	61.3'	93°03.0'	81°49.3'	48°42.3'	30°57.6'	16°29.7'	31°35.2'	69°49.1'	104°04.1'
9	131°33.9'	S 12°28.8'	7.4'	-14.6'	61.3'	92°25.0'	81°17.6'		30°19.9'	17°05.4'	31°54.6'	70°27.1'	104°39.8'
10	146°00.3'	S 12°43.4'	7.3'	-14.5'	61.3'	91°47.1'	80°45.9'		29°42.3'	17°41.2'	32°14.6'	71°05.1'	105°15.6'
11	160°26.6'	S 12°57.8'	7.2'	-14.4'	61.3'	91°09.2'	80°14.2'		29°04.7'	18°17.2'	32°35.1'	71°43.1'	105°51.3'
12	174°52.8'	S 13°12.2'	7.1'	-14.3'	61.3'	90°31.2'	79°42.6'		28°27.1'	18°53.4'	32°56.1'	72°21.1'	106°27.0'
13	189°18.9'	S 13°26.5'	7.1'	-14.2'	61.3'	89°53.3'	79°10.9'		27°49.5'	19°29.6'	33°17.5'	72°59.1'	107°02.7'
14	203°45.0'	S 13°40.8'	7.0'	-14.1'	61.3'	89°15.3'	78°39.3'		27°12.0'	20°06.0'	33°39.3'	73°37.1'	107°38.4'
15	218°11.0'	S 13°54.9'	6.9'	-14.0'	61.3'	88°37.4'	78°07.7'		26°34.5'	20°42.5'	34°01.5'	74°15.1'	108°14.1'
16	232°36.9'	S 14°08.9'	6.8'	-14.0'	61.3'	87°59.5'	77°36.2'		25°57.0'	21°19.0'	34°24.2'	74°53.1'	108°49.8'
17	247°02.7'	S 14°22.9'	6.8'	-13.9'	61.3'	87°21.5'	77°04.6'		25°19.5'	21°55.7'	34°47.3'	75°31.1'	109°25.4'
18	261°28.5'	S 14°36.7'	6.7'	-13.8'	61.3'	86°43.6'	76°33.1'		24°42.1'	22°32.4'	35°10.7'	76°09.1'	110°01.0'
19	275°54.2'	S 14°50.5'	6.6'	-13.7'	61.3'	86°05.6'	76°01.7'		24°04.7'	23°09.2'	35°34.5'	76°47.1'	110°36.6'
20	290°19.8'	S 15°04.2'	6.5'	-13.6'	61.3'	85°27.7'	75°30.2'		23°27.3'	23°46.0'	35°58.7'	77°25.1'	111°12.2'
21	304°45.3'	S 15°17.7'	6.5'	-13.5'	61.3'	84°49.8'	74°58.9'		22°50.0'	24°23.0'	36°23.2'	78°03.1'	111°47.7'
22	319°10.8'	S 15°31.2'	6.4'	-13.4'	61.3'	84°11.9'	74°27.5'		22°12.8'	24°59.9'	36°48.1'	78°41.1'	112°23.2'
23	333°36.2'	S 15°44.5'	6.3'	-13.2'	61.3'	83°33.9'	73°56.2'		21°35.6'	25°36.9'	37°13.2'	79°19.1'	112°58.7'
Mer. pass.		0 h 50 m SD 16.7' phase 100%											

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°02.9'	N 8°55.3'	Regulus	+1.4	207°37.6'	N 11°51.8'	Rigel	+0.2	281°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	N 38°47.9'	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°54.0'	N 89°21.2'
Rigel Kent	-0.0	139°43.8'	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°54.0'	S 52°42.7'				

h	Aries		Sun		Venus		Jupiter		Saturn		Mars	
	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec
0	216°11.1'	180°37.0' N 14°09.2'	172°09.8' N 16°17.0'	245°49.8' S 12°53.2'	260°33.3' S 17°27.8'	123°10.3' N 24°51.7'						
1	231°13.6'	195°37.1' N 14°10.0'	187°09.2' N 16°17.9'	260°51.9' S 12°53.1'	275°35.7' S 17°27.8'	138°11.1' N 24°51.6'						
2	246°16.0'	210°37.2' N 14°10.8'	202°08.6' N 16°18.9'	275°54.0' S 12°53.0'	290°38.0' S 17°27.7'	153°11.9' N 24°51.6'						
3	261°18.5'	225°37.3' N 14°11.5'	217°08.0' N 16°19.9'	290°56.1' S 12°52.9'	305°40.4' S 17°27.7'	168°12.7' N 24°51.6'						
4	276°21.0'	240°37.4' N 14°12.3'	232°07.4' N 16°20.8'	305°58.2' S 12°52.8'	320°42.8' S 17°27.7'	183°13.5' N 24°51.5'						
5	291°23.4'	255°37.4' N 14°13.1'	247°06.8' N 16°21.8'	321°00.3' S 12°52.6'	335°45.1' S 17°27.7'	198°14.3' N 24°51.5'						
6	306°25.9'	270°37.5' N 14°13.9'	262°06.3' N 16°22.8'	336°02.4' S 12°52.5'	350°47.5' S 17°27.6'	213°15.0' N 24°51.5'						
7	321°28.3'	285°37.6' N 14°14.7'	277°05.7' N 16°23.8'	351°04.5' S 12°52.4'	5°49.8' S 17°27.6'	228°15.8' N 24°51.4'						
8	336°30.8'	300°37.7' N 14°15.5'	292°05.1' N 16°24.7'	6°06.6' S 12°52.3'	20°52.2' S 17°27.6'	243°16.6' N 24°51.4'						
9	351°33.3'	315°37.8' N 14°16.2'	307°04.5' N 16°25.7'	21°08.7' S 12°52.2'	35°54.6' S 17°27.6'	258°17.4' N 24°51.3'						
10	6°35.7'	330°37.9' N 14°17.0'	322°03.9' N 16°26.7'	36°10.8' S 12°52.0'	50°56.9' S 17°27.5'	273°18.2' N 24°51.3'						
11	21°38.2'	345°38.0' N 14°17.8'	337°03.3' N 16°27.6'	51°12.9' S 12°51.9'	65°59.3' S 17°27.5'	288°19.0' N 24°51.3'						
12	36°40.7'	0°38.1' N 14°18.6'	352°02.7' N 16°28.6'	66°15.0' S 12°51.8'	81°01.7' S 17°27.5'	303°19.8' N 24°51.2'						
13	51°43.1'	15°38.2' N 14°19.4'	7°02.1' N 16°29.5'	81°17.1' S 12°51.7'	96°04.0' S 17°27.5'	318°20.6' N 24°51.2'						
14	66°45.6'	30°38.3' N 14°20.1'	22°01.5' N 16°30.5'	96°19.2' S 12°51.6'	111°06.4' S 17°27.5'	333°21.4' N 24°51.1'						
15	81°48.1'	45°38.4' N 14°20.9'	37°00.9' N 16°31.5'	111°21.3' S 12°51.5'	126°08.7' S 17°27.4'	348°22.2' N 24°51.1'						
16	96°50.5'	60°38.4' N 14°21.7'	52°00.4' N 16°32.4'	126°23.4' S 12°51.3'	141°11.1' S 17°27.4'	3°23.0' N 24°51.1'						
17	111°53.0'	75°38.5' N 14°22.5'	66°59.8' N 16°33.4'	141°25.5' S 12°51.2'	156°13.5' S 17°27.4'	18°23.8' N 24°51.0'						
18	126°55.5'	90°38.6' N 14°23.3'	81°59.2' N 16°34.3'	156°27.7' S 12°51.1'	171°15.8' S 17°27.4'	33°24.6' N 24°51.0'						
19	141°57.9'	105°38.7' N 14°24.0'	96°58.6' N 16°35.3'	171°29.8' S 12°51.0'	186°18.2' S 17°27.3'	48°25.3' N 24°50.9'						
20	157°00.4'	120°38.8' N 14°24.8'	111°58.0' N 16°36.3'	186°31.9' S 12°50.9'	201°20.6' S 17°27.3'	63°26.1' N 24°50.9'						
21	172°02.8'	135°38.9' N 14°25.6'	126°57.4' N 16°37.2'	201°34.0' S 12°50.7'	216°22.9' S 17°27.3'	78°26.9' N 24°50.9'						
22	187°05.3'	150°39.0' N 14°26.4'	141°56.8' N 16°38.2'	216°36.1' S 12°50.6'	231°25.3' S 17°27.3'	93°27.7' N 24°50.8'						
23	202°07.8'	165°39.1' N 14°27.2'	156°56.2' N 16°39.1'	231°38.2' S 12°50.5'	246°27.6' S 17°27.2'	108°28.5' N 24°50.8'						
		SD 15.9' d 0.8'	v -0.6' d 1.0'	v 2.1' d 0.1'	v 2.4' d 0.0'	v 0.8' d -0.0'						
Mer. pass.		11 h 57 m 29 s	12 h 32 m	7 h 36 m	6 h 37 m	15 h 47 m						

h	Moon				Lunar distance								
	GHA	dec	v	d	HP	-Deneb	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	348°01.5'	S 15°57.8'	6.2'	-13.1'	61.3'	96°05.1'	82°56.0'	73°24.9'	20°58.4'	26°14.0'	37°38.7'	79°57.0'	109°09.9'
1	2°26.8'	S 16°10.9'	6.2'	-13.0'	61.3'	95°49.5'	82°18.1'	72°53.7'	20°21.3'	26°51.1'	38°04.4'	80°35.0'	109°29.2'
2	16°51.9'	S 16°23.9'	6.1'	-12.9'	61.3'	95°33.8'	81°40.2'	72°22.6'	19°44.3'	27°28.2'	38°30.5'	81°13.0'	109°48.3'
3	31°17.0'	S 16°36.9'	6.0'	-12.8'	61.2'	95°18.1'	81°02.4'	71°51.5'	19°07.4'	28°05.4'	38°56.8'	81°50.9'	110°07.3'
4	45°42.1'	S 16°49.7'	5.9'	-12.7'	61.2'	95°02.4'	80°24.5'	71°20.4'	18°30.5'	28°42.6'	39°23.4'	82°28.9'	110°26.2'
5	60°07.0'	S 17°02.3'	5.9'	-12.6'	61.2'	94°46.6'	79°46.6'	70°49.4'	17°53.7'	29°19.8'	39°50.2'	83°06.8'	110°45.0'
6	74°31.9'	S 17°14.9'	5.8'	-12.4'	61.2'	94°30.8'	79°08.8'	70°18.5'	17°17.1'	29°57.0'	40°17.3'	83°44.7'	111°03.6'
7	88°56.7'	S 17°27.4'	5.7'	-12.3'	61.2'	94°15.0'	78°30.9'	69°47.6'	16°40.5'	30°34.3'	40°44.6'	84°22.7'	111°22.1'
8	103°21.4'	S 17°39.7'	5.7'	-12.2'	61.2'	93°59.2'	77°53.1'	69°16.8'	16°04.1'	31°11.6'	41°12.2'	85°00.6'	111°40.5'
9	117°46.1'	S 17°51.9'	5.6'	-12.1'	61.2'	93°43.4'	77°15.3'	68°46.0'	15°27.8'	31°48.8'	41°39.9'	85°38.4'	111°58.8'
10	132°10.7'	S 18°04.0'	5.5'	-11.9'	61.2'	93°27.5'	76°37.5'	68°15.3'	14°51.7'	32°26.1'	42°07.9'	86°16.3'	112°16.9'
11	146°35.2'	S 18°15.9'	5.4'	-11.8'	61.2'	93°11.6'	75°59.7'	67°44.7'	14°15.7'	33°03.4'	42°36.1'	86°54.2'	112°34.9'
12	160°59.6'	S 18°27.7'	5.4'	-11.7'	61.2'	92°55.7'	75°21.9'	67°14.2'	13°39.9'	33°40.8'	43°04.4'	87°32.0'	112°52.7'
13	175°24.0'	S 18°39.4'	5.3'	-11.6'	61.2'	92°39.8'	74°44.1'	66°43.7'	13°04.4'	34°18.1'	43°33.0'	88°09.9'	113°10.4'
14	189°48.3'	S 18°51.0'	5.2'	-11.4'	61.1'	92°23.9'	74°06.4'	66°13.3'	12°29.1'	34°55.4'	44°01.7'	88°47.7'	113°27.9'
15	204°12.5'	S 19°02.4'	5.2'	-11.3'	61.1'	92°08.0'	73°28.7'	65°43.0'	11°54.0'	35°32.7'	44°30.6'	89°25.5'	113°45.3'
16	218°36.7'	S 19°13.7'	5.1'	-11.1'	61.1'	91°52.1'	72°51.0'	65°12.8'	11°19.3'	36°10.0'	44°59.6'	90°03.2'	114°02.5'
17	233°00.8'	S 19°24.8'	5.0'	-11.0'	61.1'	91°36.2'	72°13.3'	64°42.7'	10°45.0'	36°47.4'	45°28.8'	90°41.0'	114°19.6'
18	247°24.8'	S 19°35.8'	5.0'	-10.9'	61.1'	91°20.2'	71°35.6'	64°12.6'	10°11.1'	37°24.7'	45°58.2'	91°18.7'	114°36.5'
19	261°48.8'	S 19°46.7'	4.9'	-10.7'	61.1'	91°04.3'	70°58.0'	63°42.7'	9°37.7'	38°02.0'	46°27.7'	91°56.5'	114°53.2'
20	276°12.6'	S 19°57.4'	4.8'	-10.6'	61.1'	90°48.4'	70°20.4'	63°12.8'	9°04.9'	38°39.3'	46°57.4'	92°34.2'	115°09.8'
21	290°36.5'	S 20°08.0'	4.8'	-10.4'	61.0'	90°32.5'	69°42.8'	62°43.0'		39°16.6'	47°27.1'	93°11.8'	115°26.2'
22	305°00.2'	S 20°18.4'	4.7'	-10.3'	61.0'	90°16.6'	69°05.2'	62°13.4'		39°53.9'	47°57.0'	93°49.5'	115°42.5'
23	319°23.9'	S 20°28.7'	4.6'	-10.1'	61.0'	90°00.7'	68°27.6'	61°43.8'		40°31.2'	48°27.0'	94°27.1'	115°58.6'
Mer. pass.													

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°07.0'	S 8°10.8'
Vega	+0.0	80°35.1'	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°53.9'	N 89°21.2'
Rigil Kent	-0.0	139°43.8'	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°54.0'	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	217°10.2'	180°39.2'	N 14°27.9'	171°55.6'	N 16°40.1'	246°40.3'	S 12°50.4'	261°30.0'	S 17°27.2'	123°29.3'	N 24°50.7'			
1	232°12.7'	195°39.2'	N 14°28.7'	186°55.0'	N 16°41.0'	261°42.4'	S 12°50.3'	276°32.4'	S 17°27.2'	138°30.1'	N 24°50.7'			
2	247°15.2'	210°39.3'	N 14°29.5'	201°54.4'	N 16°42.0'	276°44.5'	S 12°50.1'	291°34.7'	S 17°27.2'	153°30.9'	N 24°50.6'			
3	262°17.6'	225°39.4'	N 14°30.3'	216°53.8'	N 16°43.0'	291°46.6'	S 12°50.0'	306°37.1'	S 17°27.2'	168°31.7'	N 24°50.6'			
4	277°20.1'	240°39.5'	N 14°31.0'	231°53.2'	N 16°43.9'	306°48.7'	S 12°49.9'	321°39.5'	S 17°27.1'	183°32.5'	N 24°50.5'			
5	292°22.6'	255°39.6'	N 14°31.8'	246°52.6'	N 16°44.9'	321°50.8'	S 12°49.8'	336°41.8'	S 17°27.1'	198°33.3'	N 24°50.5'			
6	307°25.0'	270°39.7'	N 14°32.6'	261°52.0'	N 16°45.8'	336°53.0'	S 12°49.7'	351°44.2'	S 17°27.1'	213°34.1'	N 24°50.5'			
7	322°27.5'	285°39.8'	N 14°33.4'	276°51.4'	N 16°46.8'	351°55.1'	S 12°49.6'	6°46.6'	S 17°27.1'	228°34.8'	N 24°50.4'			
8	337°30.0'	300°39.8'	N 14°34.1'	291°50.8'	N 16°47.7'	6°57.2'	S 12°49.4'	21°48.9'	S 17°27.0'	243°35.6'	N 24°50.4'			
9	352°32.4'	315°39.9'	N 14°34.9'	306°50.2'	N 16°48.7'	21°59.3'	S 12°49.3'	36°51.3'	S 17°27.0'	258°36.4'	N 24°50.3'			
10	7°34.9'	330°40.0'	N 14°35.7'	321°49.6'	N 16°49.6'	37°01.4'	S 12°49.2'	51°53.7'	S 17°27.0'	273°37.2'	N 24°50.3'			
11	22°37.3'	345°40.1'	N 14°36.4'	336°49.0'	N 16°50.6'	52°03.5'	S 12°49.1'	66°56.0'	S 17°27.0'	288°38.0'	N 24°50.2'			
12	37°39.8'	0°40.2'	N 14°37.2'	351°48.4'	N 16°51.5'	67°05.6'	S 12°49.0'	81°58.4'	S 17°27.0'	303°38.8'	N 24°50.2'			
13	52°42.3'	15°40.3'	N 14°38.0'	6°47.8'	N 16°52.4'	82°07.7'	S 12°48.9'	97°00.8'	S 17°26.9'	318°39.6'	N 24°50.1'			
14	67°44.7'	30°40.4'	N 14°38.8'	21°47.2'	N 16°53.4'	97°09.8'	S 12°48.7'	112°03.1'	S 17°26.9'	333°40.4'	N 24°50.1'			
15	82°47.2'	45°40.4'	N 14°39.5'	36°46.6'	N 16°54.3'	112°12.0'	S 12°48.6'	127°05.5'	S 17°26.9'	348°41.2'	N 24°50.0'			
16	97°49.7'	60°40.5'	N 14°40.3'	51°46.0'	N 16°55.3'	127°14.1'	S 12°48.5'	142°07.9'	S 17°26.9'	3°42.0'	N 24°50.0'			
17	112°52.1'	75°40.6'	N 14°41.1'	66°45.4'	N 16°56.2'	142°16.2'	S 12°48.4'	157°10.2'	S 17°26.8'	18°42.8'	N 24°49.9'			
18	127°54.6'	90°40.7'	N 14°41.8'	81°44.8'	N 16°57.2'	157°18.3'	S 12°48.3'	172°12.6'	S 17°26.8'	33°43.6'	N 24°49.9'			
19	142°57.1'	105°40.8'	N 14°42.6'	96°44.2'	N 16°58.1'	172°20.4'	S 12°48.1'	187°15.0'	S 17°26.8'	48°44.3'	N 24°49.8'			
20	157°59.5'	120°40.9'	N 14°43.4'	111°43.6'	N 16°59.0'	187°22.5'	S 12°48.0'	202°17.3'	S 17°26.8'	63°45.1'	N 24°49.8'			
21	173°02.0'	135°40.9'	N 14°44.1'	126°43.0'	N 16°60.0'	202°24.6'	S 12°47.9'	217°19.7'	S 17°26.8'	78°45.9'	N 24°49.7'			
22	188°04.5'	150°41.0'	N 14°44.9'	141°42.4'	N 17°00.9'	217°26.7'	S 12°47.8'	232°22.1'	S 17°26.7'	93°46.7'	N 24°49.7'			
23	203°06.9'	165°41.1'	N 14°45.7'	156°41.8'	N 17°01.9'	232°28.9'	S 12°47.7'	247°24.4'	S 17°26.7'	108°47.5'	N 24°49.6'			
		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 -0.0'				
Mer. pass.		11 h 57 m 20 s		12 h 33 m		7 h 32 m		6 h 33 m		15 h 45 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Jupiter	-Saturn	-Altair	-Antares	+Spica	+Arcturus	+Regulus	+Adhara
0	333°47.6'	S 20°38.8'	4.6'	-10.0'	61.0'	82°52.0'	67°50.1'	61°14.3'		41°08.5'	48°57.2'	95°04.7'	116°14.5'
1	348°11.2'	S 20°48.8'	4.5'	-9.8'	61.0'	82°14.8'	67°12.6'	60°45.0'		41°45.7'	49°27.4'	95°42.3'	116°30.2'
2	2°34.7'	S 20°58.6'	4.5'	-9.7'	61.0'	81°37.6'	66°35.1'	60°15.7'		42°23.0'	49°57.8'	96°19.9'	116°45.7'
3	16°58.2'	S 21°08.3'	4.4'	-9.5'	60.9'	81°00.4'	65°57.7'	59°46.6'		43°00.2'	50°28.2'	96°57.4'	117°01.1'
4	31°21.6'	S 21°17.8'	4.4'	-9.4'	60.9'	80°23.2'	65°20.3'	59°17.6'		43°37.4'	50°58.8'	97°34.9'	
5	45°44.9'	S 21°27.1'	4.3'	-9.2'	60.9'	79°46.1'	64°42.9'	58°48.7'		44°14.6'	51°29.4'	98°12.4'	
6	60°08.2'	S 21°36.3'	4.2'	-9.0'	60.9'	79°09.0'	64°05.5'	58°19.9'		44°51.8'	52°00.2'	98°49.9'	
7	74°31.4'	S 21°45.4'	4.2'	-8.9'	60.9'	78°31.9'	63°28.2'	57°51.3'		45°28.9'	52°31.0'	99°27.3'	
8	88°54.6'	S 21°54.3'	4.1'	-8.7'	60.8'	77°54.9'	62°50.9'	57°22.8'		46°06.1'	53°01.9'	100°04.7'	
9	103°17.8'	S 22°03.0'	4.1'	-8.6'	60.8'	77°17.9'	62°13.6'	56°54.4'		46°43.2'	53°32.8'	100°42.0'	
10	117°40.9'	S 22°11.5'	4.0'	-8.4'	60.8'	76°40.9'	61°36.3'	56°26.2'		47°20.3'	54°03.9'	101°19.4'	
11	132°03.9'	S 22°19.9'	4.0'	-8.2'	60.8'	76°03.9'	60°59.1'	55°58.1'		47°57.4'	54°35.0'	101°56.7'	
12	146°26.9'	S 22°28.1'	4.0'	-8.1'	60.7'	75°27.0'	60°21.9'	55°30.1'		48°34.4'	55°06.1'	102°34.0'	
13	160°49.9'	S 22°36.2'	3.9'	-7.9'	60.7'	74°50.1'	59°44.8'	55°02.3'		49°11.5'	55°37.4'	103°11.2'	
14	175°12.8'	S 22°44.1'	3.9'	-7.7'	60.7'	74°13.2'	59°07.6'	54°34.7'		49°48.5'	56°08.6'	103°48.4'	
15	189°35.6'	S 22°51.8'	3.8'	-7.6'	60.7'	73°36.4'	58°30.6'	54°07.2'		50°25.4'	56°40.0'	104°25.6'	
16	203°58.5'	S 22°59.4'	3.8'	-7.4'	60.6'	72°59.6'	57°53.5'	53°39.8'		51°02.4'	57°11.4'	105°02.7'	
17	218°21.3'	S 23°06.7'	3.8'	-7.2'	60.6'	72°22.8'	57°16.5'	53°12.6'		51°39.3'	57°42.8'	105°39.9'	
18	232°44.0'	S 23°14.0'	3.7'	-7.0'	60.6'	71°46.1'	56°39.5'	52°45.6'		52°16.2'	58°14.3'	106°16.9'	
19	247°06.7'	S 23°21.0'	3.7'	-6.9'	60.6'	71°09.4'	56°02.6'	52°18.8'		52°53.1'	58°45.8'	106°54.0'	
20	261°29.4'	S 23°27.8'	3.7'	-6.7'	60.5'	70°32.8'	55°25.6'	51°52.1'	8°32.6'	53°29.9'	59°17.4'	107°31.0'	
21	275°52.1'	S 23°34.5'	3.6'	-6.5'	60.5'	69°56.1'	54°48.8'	51°25.6'	9°04.1'	54°06.7'	59°49.0'	108°07.9'	
22	290°14.7'	S 23°41.0'	3.6'	-6.3'	60.5'	69°19.5'	54°11.9'	50°59.3'	9°36.2'	54°43.5'	60°20.6'	108°44.9'	
23	304°37.3'	S 23°47.4'	3.6'	-6.2'	60.5'	68°43.0'	53°35.1'	50°33.2'	10°08.9'	55°20.2'	60°52.2'	109°21.8'	
Mer. pass.		1 h 49 m SD 16.6'		phase 95%									

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°53.9'	N 89°21.2'
Rigil 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°54.0'	S 52°42.7'				

Friday 30 April 2021 UT1

h	Aries			Sun			Venus		Jupiter		Saturn		Mars	
	GHA	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	GHA	dec	
0	218°09.4'	180°41.2'	N 14°46.4'	171°41.2'	N 17°02.8'	247°31.0'	S 12°47.6'	262°26.8'	S 17°26.7'	123°48.3'	N 24°49.6'			
1	233°11.8'	195°41.3'	N 14°47.2'	186°40.6'	N 17°03.7'	262°33.1'	S 12°47.4'	277°29.2'	S 17°26.7'	138°49.1'	N 24°49.5'			
2	248°14.3'	210°41.3'	N 14°48.0'	201°39.9'	N 17°04.7'	277°35.2'	S 12°47.3'	292°31.5'	S 17°26.7'	153°49.9'	N 24°49.5'			
3	263°16.8'	225°41.4'	N 14°48.7'	216°39.3'	N 17°05.6'	292°37.3'	S 12°47.2'	307°33.9'	S 17°26.6'	168°50.7'	N 24°49.4'			
4	278°19.2'	240°41.5'	N 14°49.5'	231°38.7'	N 17°06.5'	307°39.4'	S 12°47.1'	322°36.3'	S 17°26.6'	183°51.5'	N 24°49.4'			
5	293°21.7'	255°41.6'	N 14°50.3'	246°38.1'	N 17°07.5'	322°41.6'	S 12°47.0'	337°38.6'	S 17°26.6'	198°52.3'	N 24°49.3'			
6	308°24.2'	270°41.7'	N 14°51.0'	261°37.5'	N 17°08.4'	337°43.7'	S 12°46.9'	352°41.0'	S 17°26.6'	213°53.1'	N 24°49.3'			
7	323°26.6'	285°41.8'	N 14°51.8'	276°36.9'	N 17°09.3'	352°45.8'	S 12°46.8'	7°43.4'	S 17°26.5'	228°53.9'	N 24°49.2'			
8	338°29.1'	300°41.8'	N 14°52.6'	291°36.3'	N 17°10.3'	7°47.9'	S 12°46.6'	22°45.7'	S 17°26.5'	243°54.6'	N 24°49.2'			
9	353°31.6'	315°41.9'	N 14°53.3'	306°35.7'	N 17°11.2'	22°50.0'	S 12°46.5'	37°48.1'	S 17°26.5'	258°55.4'	N 24°49.1'			
10	8°34.0'	330°42.0'	N 14°54.1'	321°35.1'	N 17°12.1'	37°52.1'	S 12°46.4'	52°50.5'	S 17°26.5'	273°56.2'	N 24°49.1'			
11	23°36.5'	345°42.1'	N 14°54.8'	336°34.4'	N 17°13.1'	52°54.2'	S 12°46.3'	67°52.8'	S 17°26.5'	288°57.0'	N 24°49.0'			
12	38°38.9'	0°42.2'	N 14°55.6'	351°33.8'	N 17°14.0'	67°56.4'	S 12°46.2'	82°55.2'	S 17°26.4'	303°57.8'	N 24°49.0'			
13	53°41.4'	15°42.2'	N 14°56.4'	6°33.2'	N 17°14.9'	82°58.5'	S 12°46.1'	97°57.6'	S 17°26.4'	318°58.6'	N 24°48.9'			
14	68°43.9'	30°42.3'	N 14°57.1'	21°32.6'	N 17°15.8'	98°00.6'	S 12°45.9'	112°60.0'	S 17°26.4'	333°59.4'	N 24°48.8'			
15	83°46.3'	45°42.4'	N 14°57.9'	36°32.0'	N 17°16.8'	113°02.7'	S 12°45.8'	128°02.3'	S 17°26.4'	349°00.2'	N 24°48.8'			
16	98°48.8'	60°42.5'	N 14°58.6'	51°31.4'	N 17°17.7'	128°04.8'	S 12°45.7'	143°04.7'	S 17°26.4'	4°01.0'	N 24°48.7'			
17	113°51.3'	75°42.5'	N 14°59.4'	66°30.8'	N 17°18.6'	143°06.9'	S 12°45.6'	158°07.1'	S 17°26.3'	19°01.8'	N 24°48.7'			
18	128°53.7'	90°42.6'	N 15°00.2'	81°30.1'	N 17°19.5'	158°09.1'	S 12°45.5'	173°09.4'	S 17°26.3'	34°02.6'	N 24°48.6'			
19	143°56.2'	105°42.7'	N 15°00.9'	96°29.5'	N 17°20.5'	173°11.2'	S 12°45.4'	188°11.8'	S 17°26.3'	49°03.4'	N 24°48.6'			
20	158°58.7'	120°42.8'	N 15°01.7'	111°28.9'	N 17°21.4'	188°13.3'	S 12°45.2'	203°14.2'	S 17°26.3'	64°04.1'	N 24°48.5'			
21	174°01.1'	135°42.9'	N 15°02.4'	126°28.3'	N 17°22.3'	203°15.4'	S 12°45.1'	218°16.6'	S 17°26.3'	79°04.9'	N 24°48.4'			
22	189°03.6'	150°42.9'	N 15°03.2'	141°27.7'	N 17°23.2'	218°17.5'	S 12°45.0'	233°18.9'	S 17°26.2'	94°05.7'	N 24°48.4'			
23	204°06.1'	165°43.0'	N 15°04.0'	156°27.1'	N 17°24.1'	233°19.7'	S 12°44.9'	248°21.3'	S 17°26.2'	109°06.5'	N 24°48.3'			
		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 12 s		12 h 34 m		7 h 29 m		6 h 29 m		15 h 44 m				

h	Moon					Lunar distance							
	GHA	dec	v	d	HP	-Fomalhaut	-Jupiter	-Saturn	-Altair	+Antares	+Rigel Kent	+Hadar	+Spica
0	318°59.9'	S 23°53.5'	3.6'	-6.0'	60.4'	74°50.9'	68°06.5'	52°58.4'	50°07.3'	10°42.0'			55°57.0'
1	333°22.5'	S 23°59.5'	3.5'	-5.8'	60.4'	74°15.5'	67°30.0'	52°21.7'	49°41.5'	11°15.4'			56°33.6'
2	347°45.0'	S 24°05.3'	3.5'	-5.6'	60.4'	73°40.1'	66°53.6'	51°45.0'	49°16.0'	11°49.2'			57°10.3'
3	2°07.5'	S 24°11.0'	3.5'	-5.4'	60.3'	73°04.8'	66°17.2'	51°08.3'	48°50.7'	12°23.2'			57°46.9'
4	16°30.0'	S 24°16.4'	3.5'	-5.3'	60.3'	72°29.5'	65°40.8'	50°31.7'	48°25.5'	12°57.5'			58°23.5'
5	30°52.5'	S 24°21.7'	3.5'	-5.1'	60.3'	71°54.2'	65°04.5'	49°55.2'	48°00.6'	13°31.9'			59°00.0'
6	45°15.0'	S 24°26.8'	3.5'	-4.9'	60.3'	71°19.0'	64°28.2'	49°18.7'	47°36.0'	14°06.5'			59°36.5'
7	59°37.4'	S 24°31.7'	3.5'	-4.7'	60.2'	70°43.9'	63°52.0'	48°42.2'	47°11.5'	14°41.2'			60°13.0'
8	73°59.9'	S 24°36.4'	3.5'	-4.5'	60.2'	70°08.8'	63°15.8'	48°05.7'	46°47.3'	15°16.1'			60°49.4'
9	88°22.4'	S 24°40.9'	3.4'	-4.4'	60.2'	69°33.7'	62°39.6'	47°29.3'	46°23.3'	15°51.0'			61°25.8'
10	102°44.8'	S 24°45.3'	3.4'	-4.2'	60.1'	68°58.8'	62°03.5'	46°53.0'	45°59.5'	16°26.1'		51°21.9'	62°02.2'
11	117°07.2'	S 24°49.5'	3.4'	-4.0'	60.1'	68°23.8'	61°27.4'	46°16.7'	45°36.0'	17°01.2'		51°37.0'	62°38.5'
12	131°29.7'	S 24°53.5'	3.4'	-3.8'	60.1'	67°48.9'	60°51.4'	45°40.4'	45°12.8'	17°36.3'		51°52.3'	63°14.8'
13	145°52.1'	S 24°57.3'	3.5'	-3.6'	60.0'	67°14.1'	60°15.4'	45°04.2'	44°49.8'	18°11.5'		52°07.9'	63°51.1'
14	160°14.6'	S 25°00.9'	3.5'	-3.5'	60.0'	66°39.3'	59°39.4'	44°28.0'	44°27.0'	18°46.7'		52°23.7'	64°27.3'
15	174°37.1'	S 25°04.4'	3.5'	-3.3'	60.0'	66°04.6'	59°03.5'	43°51.9'	44°04.6'	19°22.0'		52°39.8'	65°03.5'
16	188°59.5'	S 25°07.7'	3.5'	-3.1'	59.9'	65°29.9'	58°27.7'	43°15.8'	43°42.4'	19°57.3'		52°56.0'	65°39.6'
17	203°22.0'	S 25°10.7'	3.5'	-2.9'	59.9'	64°55.3'	57°51.8'	42°39.8'	43°20.5'	20°32.6'	48°57.6'	53°12.5'	66°15.7'
18	217°44.5'	S 25°13.6'	3.5'	-2.7'	59.9'	64°20.7'	57°16.1'	42°03.8'	42°58.8'	21°08.0'	49°28.1'	53°29.2'	66°51.7'
19	232°07.0'	S 25°16.4'	3.5'	-2.5'	59.8'	63°46.2'	56°40.3'	41°27.9'	42°37.5'	21°43.3'	49°43.7'	53°46.0'	67°27.7'
20	246°29.6'	S 25°18.9'	3.6'	-2.4'	59.8'	63°11.8'	56°04.7'	40°52.0'	42°16.4'	22°18.6'	49°59.6'	54°03.1'	68°03.7'
21	260°52.1'	S 25°21.3'	3.6'	-2.2'	59.8'	62°37.4'	55°29.0'	40°16.1'	41°55.7'	22°54.0'	50°15.7'	54°20.4'	68°39.6'
22	275°14.7'	S 25°23.5'	3.6'	-2.0'	59.7'	62°03.1'	54°53.4'	39°40.3'	41°35.3'	23°29.3'	50°32.0'	54°37.8'	69°15.5'
23	289°37.3'	S 25°25.4'	3.6'	-1.8'	59.7'	61°28.8'	54°17.9'	39°04.6'	41°15.2'	24°04.6'	50°48.5'	54°55.4'	69°51.4'
Mer. pass.		2 h 51 m SD 16.5' phase 88%											

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°53.8'	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°54.0'	S 52°42.7'				