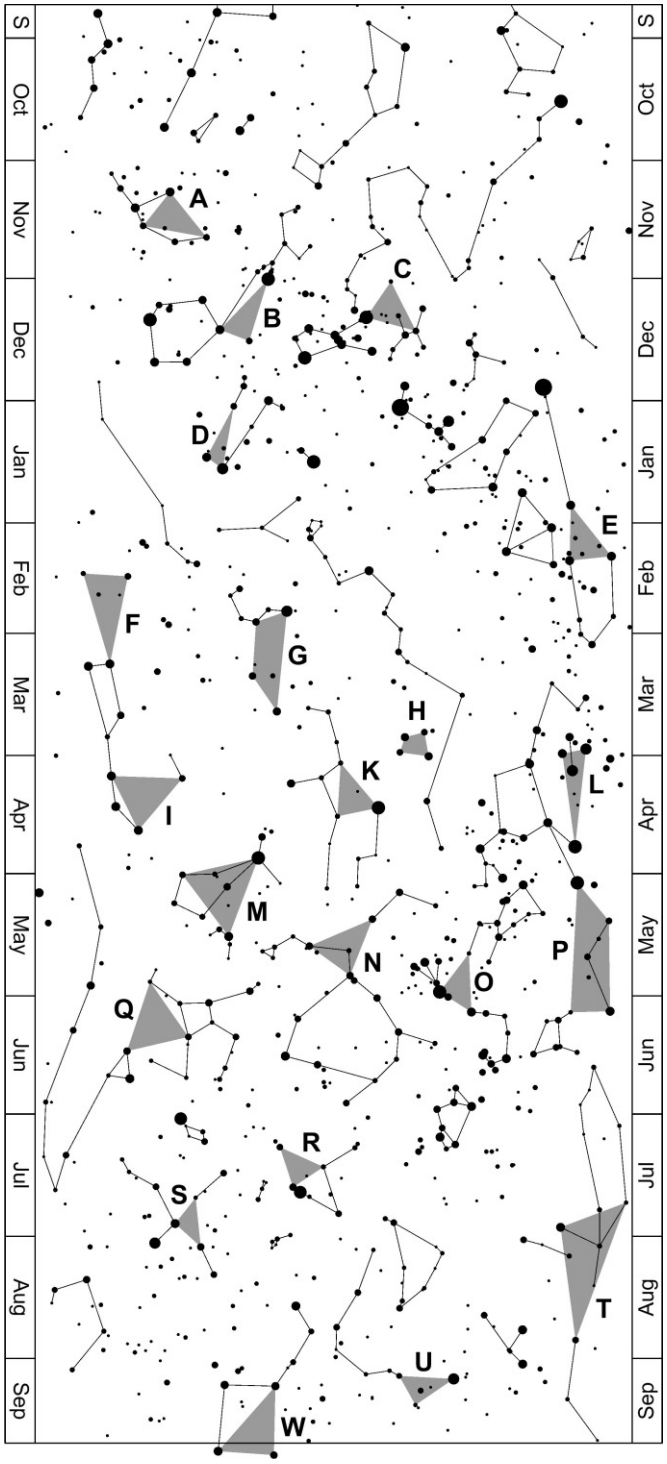
Naked Eye Limiting Magnitude

The naked-eye limiting magnitude is the magnitude of the faintest star an observer can discern under given sky conditions. The limiting magnitude depends strongly on sky transparency and the observer's experience and acuity of vision. To find a night's personal naked-eye limiting magnitude the star count method can be used.



① Choose a Star Field
For the counting, one or more starfields must be chosen from the map (fields A to W) to the left. The best results are achieved when several star fields close to the zenith are selected. The map's date scales indicate which star fields cross your local meridian around midnight.

② Get Dark Adapted
Before counting, wait at least half an hour to let your eyes adapt to the dark. In the meantime, use dim red lights only to preserve your night vision.

③ Count Visible Stars
Count all the stars you can see within the chosen fields, including the corner stars. Count only stars that are steadily visible.

④ Look up Limiting Magnitude
Look up the resulting limiting magnitude in the table on the second page.

Note that under dark skies with a limiting magnitude better than magnitude 6, fields within the Milky Way (e.g. S,R,O) deliver a pessimistic value compared to fields outside the Milky Way (e.g. W,Q,M).

Source: The star count fields used in this document are derived from the star count fields published by the IMO (International Meteor Organziation).

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The following table lists the star count fields' limiting magnitudes. The first column indicates the number of stars counted, the columns A to W give the limiting magnitude.

Stars	A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T	U	W
1	2.1	1.0	0.3	1.2	1.7	2.4	1.4	2.6	1.8	1.1	0.6	0.2	2.6	1.1	0.0	2.8	2.7	2.2	1.9	1.2	2.1
2	2.9	1.7	2.8	2.0	2.0	3.2	2.1	2.7	1.9	2.7	1.3	2.2	2.6	2.3	1.9	3.1	3.0	2.5	2.9	3.3	2.5
3	3.0	3.0	3.3	3.0	2.3	3.7	2.2	3.0	2.9	3.4	1.6	2.4	2.7	4.0	2.8	3.9	3.4	3.9	3.4	3.7	2.8
4	3.8	4.6	3.9	3.8	3.8	3.8	2.6	3.0	4.7	4.4	1.7	3.0	3.6	5.3	2.9	4.8	4.5	4.7	3.7	4.0	4.7
5	5.0	4.9	4.3	5.0	4.0	4.5	3.3	5.2	5.2	5.8	4.3	3.6	5.1	5.4	3.8	5.1	5.2	4.7	4.0	4.5	5.1
6	5.2	5.0	4.4	5.1	4.0	4.6	4.4	5.8	5.6	5.8	4.6	4.5	5.2	5.5	3.9	5.5	5.3	4.8	4.2	4.7	5.5
7	5.6	5.1	4.5	5.3	4.3	4.8	4.8	6.0	5.8	5.9	4.6	4.5	5.4	5.8	4.1	5.7	5.5	4.9	5.8	5.5	5.6
8	5.6	5.3	4.8	5.8	5.5	5.1	5.4	6.4	5.9	5.9	4.6	4.8	5.4	5.9	4.9	5.8	6.0	5.1	5.9	5.7	5.8
9	5.8	5.4	5.5	5.8	5.5	5.2	5.4	6.6	5.9	6.0	4.7	4.8	5.5	6.0	5.1	5.9	6.0	5.4	5.1	6.0	6.1
10	5.8	5.5	5.5	5.8	5.8	5.5	5.5	6.8	6.1	6.0	4.9	4.9	5.5	6.1	5.1	6.0	6.3	5.6	5.2	6.3	6.1
11	6.0	5.7	5.7	6.2	5.8	5.7	5.5	7.1	6.4	6.1	5.5	5.3	5.6	6.2	5.1	6.1	6.4	5.6	5.2	6.3	6.2
12	6.0	5.8	5.7	6.4	6.4	5.7	5.6	7.3	6.5	6.4	5.8	5.5	5.9	6.3	5.2	6.1	6.7	5.9	5.6	6.4	6.3
13	6.1	6.1	5.7	6.5	6.4	5.8	5.7	7.3	6.6	6.4	5.8	5.7	6.3	6.4	5.2	6.2	6.7	5.9	5.6	6.8	6.3
14	6.4	6.2	5.7	6.5	6.5	6.0	5.9	7.4	6.7	6.6	6.0	5.8	6.3	6.5	5.3	6.2	6.8	6.0	5.8	6.8	6.3
15	6.4	6.3	5.8	6.7	6.5	6.2	6.1	7.4	6.8	6.6	6.2	5.8	6.5	6.6	5.5	6.3	6.8	6.3	5.9	7.0	6.3
16	6.5	6.3	6.0	6.8	6.6	6.3	6.2	7.4	6.8	6.7	6.2	5.9	6.5	6.6	5.7	6.3	6.9	6.3	6.1	7.1	6.4
17	6.5	6.4	6.0	6.8	6.7	6.4	6.3	7.5	6.8	6.7	6.2	5.9	6.5	6.6	5.8	6.4	6.9	6.3	6.2	7.3	6.5
18	6.5	6.5	6.1	7.0	6.9	6.4	6.3		6.8	6.8	6.4	6.0	6.7	6.9	5.8	6.4	7.0	6.3	6.2	7.4	6.5
19	6.5	6.6	6.2	7.0	6.9	6.5	6.3		7.0	6.9	6.6	6.0	6.9	6.9	5.9	6.5	7.0	6.4	6.3	7.5	6.5
20	6.6	6.7	6.2	7.0	6.9	6.5	6.4		7.0	7.0	6.6	6.0	6.9	7.0	5.9	6.5	7.1	6.5	6.3	7.5	6.6
21	6.6	6.8	6.3	7.1	7.0	6.5	6.4		7.0	7.1	6.7	6.1	6.9	7.0	6.0	6.6	7.1	6.5	6.4	7.5	6.6
22	6.7	6.8	6.4	7.1	7.0	6.6	6.5		7.1	7.1	6.7	6.1	7.0	7.0	6.0	6.7	7.1	6.6	6.4	7.5	6.6
23	6.7	6.9	6.4	7.2	7.1	6.7	6.6		7.1	7.2	6.7	6.1	7.0	7.1	6.0	6.7	7.1	6.7	6.4		6.6
24	6.7	6.9	6.4	7.2	7.1	6.8	6.6		7.2	7.2	6.7	6.2	7.0	7.1	6.1	6.7	7.1	6.7	6.5		6.6
25	6.8	7.0	6.5	7.4	7.2	6.8	6.8		7.3	7.2	6.8	6.3	7.0	7.1	6.1	6.8	7.1	6.8	6.6		6.7
26	6.8	7.2	6.5	7.5	7.2	6.9	6.8		7.3	7.2	6.9	6.3	7.1	7.2	6.1	6.8	7.3	6.9	6.7		6.7
27	6.9	7.2	6.5	7.5	7.2	7.0	6.8		7.3	7.3	6.9	6.4	7.2	7.3	6.2	6.9	7.3	6.9	6.7		6.7
28	6.9	7.2	6.7	7.5	7.2	7.0	6.9		7.4	7.3	7.0	6.4	7.2	7.4	6.2	6.9	7.4	7.0	6.7		6.7
29	6.9	7.2	6.7	7.5	7.3	7.1	7.0		7.5	7.3	7.0	6.4	7.2	7.5	6.2	6.9	7.4	7.0	6.8		6.7
30	7.0	7.3	6.7		7.3	7.1	7.0		7.5	7.3	7.1	6.4	7.2		6.2	7.0	7.4	7.0	6.8		6.7
31	7.0	7.3	6.8		7.3	7.1	7.0			7.3	7.1	6.6	7.2		6.2	7.0	7.4	7.0	6.8		6.7
32	7.0		6.8		7.4	7.2	7.1			7.4	7.1	6.7	7.3		6.2	7.0	7.4	7.1	6.9		6.8
33	7.1		7.0		7.4	7.2	7.1			7.4	7.2	6.7	7.3		6.3	7.1	7.5	7.1	6.9		6.9
34	7.2		7.0		7.4	7.2	7.1				7.2	6.7	7.3		6.3	7.2	7.5	7.1	6.9		6.9
35	7.2		7.0		7.4	7.2	7.1				7.2	6.8	7.3		6.3	7.2		7.1	6.9		6.9
36	7.2		7.1		7.4	7.3	7.1				7.2	6.8	7.3		6.3	7.2		7.1	6.9		7.1
37	7.2		7.1		7.4	7.3	7.1				7.3	6.8	7.3		6.3	7.4		7.2	7.0		7.1
38	7.2		7.1		7.5	7.4	7.1				7.3	6.8	7.3		6.4	7.4		7.3	7.0		7.1
39	7.2		7.2		7.5	7.4	7.1				7.3	6.8	7.4		6.4	7.4		7.3	7.0		7.1
40	7.2		7.2			7.4	7.2				7.3	6.9	7.4		6.4	7.4		7.3	7.1		7.1
41	7.2		7.2			7.5	7.3				7.4	6.9	7.4		6.5	7.5		7.3	7.1		7.1
42	7.3		7.3			7.5	7.3				7.4	6.9	7.4		6.5	7.5		7.3	7.1		7.1
43	7.3		7.3			7.5	7.3				7.4	7.0	7.4		6.5	7.5		7.3	7.1		7.2
44	7.3		7.3			7.5	7.3				7.5	7.0	7.4		6.6	7.5		7.4	7.2		7.2
45	7.3		7.3				7.3				7.5	7.0	7.5		6.6	7.5		7.4	7.2		7.2
46	7.3		7.3				7.3					7.0	7.5		6.6	7.5		7.4	7.2		7.3
47	7.3		7.3				7.4					7.0	7.5		6.6	7.4		7.2	7.3		
48	7.3		7.4				7.4					7.0	7.5		6.6	7.4		7.2	7.4		
49	7.3		7.4				7.4					7.1	7.5		6.6	7.4		7.2	7.4		
50	7.3		7.4				7.4					7.1			6.7	7.5		7.2	7.4		

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