NOVEMBER 2026

Latitude from two stars · tray of oil · pencil · no calculator

Tonight: one star due NORTH, one star due SOUTH. Each gives your latitude. Average the two.

NORTH STAR

ALKAID

End of the Big Dipper's handle. The Dipper stands low in the north, handle down.



Facing NORTH · Alkaid 28° above the horizon

Set sextant to about **56°**

Keep the **LOWEST**

Due north at (OffTrack base, local time):

1 Nov	8 Nov	15 Nov	22 Nov	29 Nov
22:47	22:20	21:52	21:25	20:57

Star is 28° high then.

SOUTH STAR

HAMAL

Brightest star of Aries, between the Great Square and the Pleiades, due south.



Facing SOUTH · Hamal 45° above the horizon

Set sextant to about **89°**

Keep the **HIGHEST**

Due south at (OffTrack base, local time):

1 Nov	8 Nov	15 Nov	22 Nov	29 Nov
23:08	22:40	22:13	21:45	21:17

Star is 45° high then.

HOW

1. Index error: set 0°, look at a bright star, merge its two images. Write the reading on page 2.
2. Set up the tray of oil 20 m from the dogs. Let the oil go still.
3. 10 minutes before the time above: find the star's reflection in the oil, set the sextant, merge the two stars.
4. Keep following it with the tangent screw for 15 minutes. Write down the LOWEST (north) or HIGHEST (south) reading.
5. Do page 2 in the warm. Only adding, subtracting and halving.

Times are for OffTrack base. Further east: a little earlier (4 min per degree of longitude). West: later.
Camp 100 km further south? South-star preset +2°, north-star preset −2°. The calculation stays the same.

NOVEMBER 2026 · CALCULATE (1 of 2)

Grey = worked example. Write yours in the big boxes.

NORTH STAR · ALKAID

A	Lowest reading	56° 26.0'	° '
B	Index error (on the arc)	2.4'	'
C	A minus B	56° 23.6'	° '
D	C halved	28° 11.8'	° '
E	Refraction (printed)	2.0'	**2.0'**
F	D minus E	28° 09.8'	° '
G	Magic number (printed)	40° 49.4'	**40° 49.4'**
LATITUDE = F + G		68° 59.2'	° '

PENCIL TIPS

Halving Odd degrees? Take 1° off, add 60' to the minutes, then halve.
`97° 25'  →  96° 85'  →  48° 42.5'`

Borrowing Not enough minutes to subtract? Turn 1° into 60'.
`119° 05'  →  118° 65'`

Carrying Over 60 minutes after adding? Take 60' off, add 1°.
`28° 70'  →  29° 10'`

Index error On the arc: subtract it (as printed). Off the arc: ADD it.

NOVEMBER 2026 · CALCULATE (2 of 2)

Grey = worked example. Write yours in the big boxes.

SOUTH STAR · HAMAL

A	Highest reading	89° 17.0'	° '
B	Index error (on the arc)	2.4'	'
C	A minus B	89° 14.6'	° '
D	C halved	44° 37.3'	° '
E	Refraction (printed)	1.1'	**1.1'**
F	D minus E	44° 36.2'	° '
G	Magic number (printed)	113° 35.5'	**113° 35.5'**
LATITUDE = G − F		68° 59.3'	° '

AVERAGE = (north latitude + south latitude) halved

YOUR LATITUDE	68° 59.2'	° '

OffTrack base is at 68° 59.6' N. 1' of latitude = 1.85 km. The example was taken there.