#4 cut

Tell a friend about...

MapTools.com/declination

Custom Declination Reference Cards

"everything you need to know about North References"

#3 cut

from MapTools.com/declination

Free Customized Declination Reference Sheet

N 39.8° W 98.6° North Refs: Up=T, Plot=G, Compass=M

Declination Reference Card for
N 39.8° W 98.6°
September, 2026

Bearings Measured Relative to GN
are 3.5° larger
than bearings measured relative to MN
(small angles have been exaggerated for clarity)

MapTools.com/declination

Setting Up your Compass
With a 0.0° Offset
to Measure Relative
to Magnetic North

MapTools.com ©2026

MapTools.com

Tools for plotting coordinates

Information for learning to be a better navigator

Example of Plotting or Measuring Bearings on the Map
Using Grid North as the North Reference
In this example the bearing is 70° Grid

- Rotate the compass dial so that 70° is at the index line.
- We're not using the magnetic needle in our compass.
- Instead we are aligning the parallel lines, in the compass capsule, with the Grid North reference lines on the map.

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TN
GN
MN

p4

B

B

Folding and cutting instructions

#1 Turn the sheet over, fold in half on the dotted line, so the letter "A"s touch.

#2 Fold the sheet in half again on the #2 fold line, so the letter "B"s touch.

#3 Cut the sheet using the marks at the #3 cut line.

#4 Cut the sheet using the marks at the #4 cut line.

#2 fold

Compass and Map Plotting use different north references. Conversion is required.

Compass (M) to Map (G)
Grid = Compass (M) + 3.5°

Map (G) to Compass (M)
Compass (M) = Grid - 3.5°

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A

Local Magnetic Anomalies

In some areas there may be significant localized magnetic fields typically caused by magnetic rock deposits such as iron ore or lava flows. 3-4 degrees of anomalous declination is common near these areas. In extreme cases a compass may be rendered useless.

It is a good idea to confirm the local declination by comparing compass sighted and map plotted bearings between two known points.

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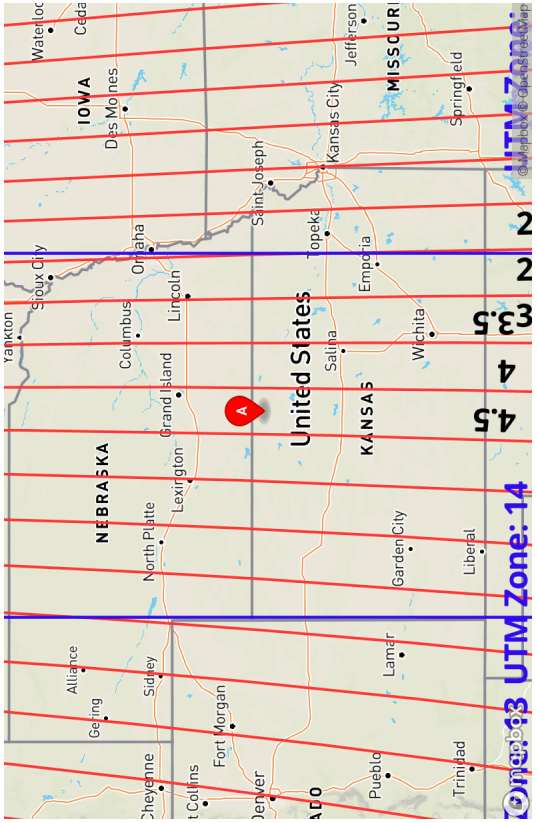
Red lines show Magnetic -> Grid variation



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A