

### Declination

The magnetic reference for Earth is north regardless of whether you are traveling north or south. Magnetic declination, or declination, is the difference between the true north reading from the map and the magnetic north reading from a compass. When a compass is used in combination with a map, a correction must be made to allow for declination.

In North America, magnetic declination varies from 30 degrees East in Alaska to 20 degrees West in Labrador, Maine. The degrees of declination for an area are usually located on the bottom margin of the map near the north arrow, or they can be located using a declination chart.

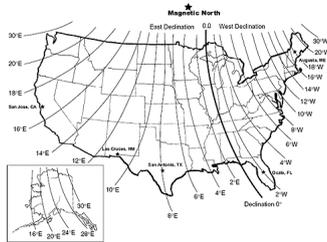


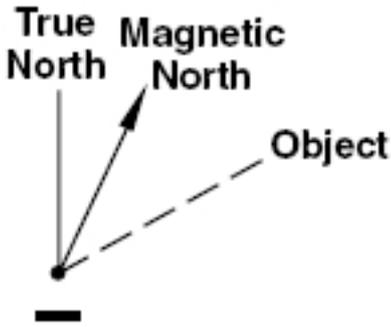
Figure 4.2—Map shows declination of the compass in North America.

The method for correcting for declination is as follows:

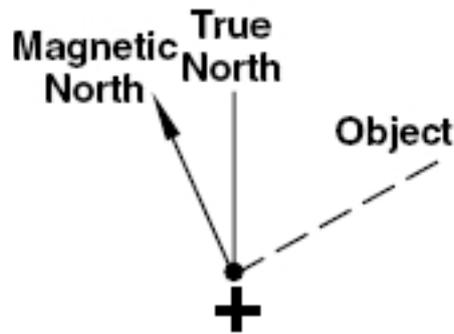
1. For Easterly Declination, subtract the declination from the true reading to obtain the magnetic reading.  $\text{Magnetic} = \text{true} - \text{easterly declination}$
2. For Westerly Declination, add the declination to the true reading to obtain the magnetic reading.  $\text{Magnetic} = \text{true} + \text{westerly declination}$

An easy way to remember whether to add or subtract is "West is best and East is least." So for West declination, add to the true reading (West is best, and therefore a larger number) and for East declination subtract from the true reading (East is least, and therefore a smaller number).

## 6.5 Declination

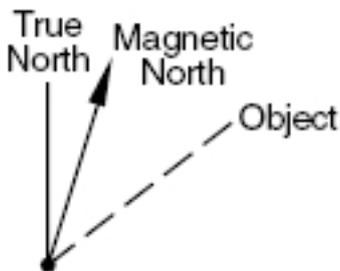


If the arrow *on the compass* is to the right of *true north*, or to the east, **subtract** the declination.



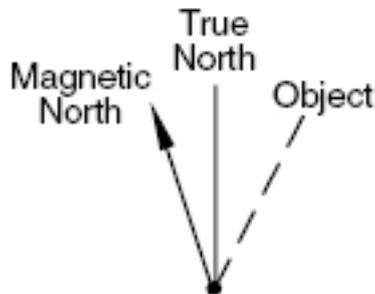
If the arrow *on the compass* is to the left of *true north*, or to the west, **add** the declination.

~~Example 1: A compass in 25° East of California. The declination is 17° East. A bearing of 35° is~~



35° magnetic reading  
 + 17°E declination  
 52° true reading

~~Example 2: A compass in 50° West of California. The declination is 18° West. A bearing of 45° is~~



45° magnetic reading  
 - 18°W declination  
 27° true reading

~~Example 3: A compass in 27° West of California. The declination is 13° West. A bearing of 35° is~~

### Practice

1. Jim takes a compass reading of 35° from where he is standing to a lookout tower. The declination is 13° W. What is the true reading?

- 35
- 22
- 48
- 13

Select the correct answer.

