

071-329-1009

## CONVERT AZIMUTHS

**CONDITIONS:** Given a standard 1:50,000 scale military map with a declination diagram, a pencil, and magnetic and grid azimuths that must be converted.

**STANDARDS:** Convert the given magnetic azimuth to a grid azimuth and the given grid azimuth to a magnetic azimuth without error.

### PERFORMANCE STEPS

1. The North-South lines on your map give grid north. The needle of your compass points to magnetic north. Grid north and magnetic north usually differ by a few degrees. Neither points straight to the North Pole (called true North). However, you need not know true North to keep from getting lost in a combat area. The difference in degrees for every map is shown on the bottom of map sheet **Figure 1 (Declination Diagram)**.

2. The difference between grid north and magnetic north is called the grid-magnetic (G-M) angle. The diagram at the bottom of the map tells you how to change grid azimuths to magnetic azimuths and magnetic azimuths to grid azimuths **Figure 2 (G-M Angle)**. For example, you aim your compass at a distant point. The compass reading you get is 190 degrees, the magnetic azimuth. The diagram on your map **Figure 2 (G-M Angle)** tells you that the G-M angle is 9 degrees, and it also tells you that "to convert a magnetic azimuth to a grid azimuth, add the G-M angle." Therefore add 9 degrees to your compass reading. This gives you  $190 + 9 = 199$ . Your grid azimuth is 199 degrees.

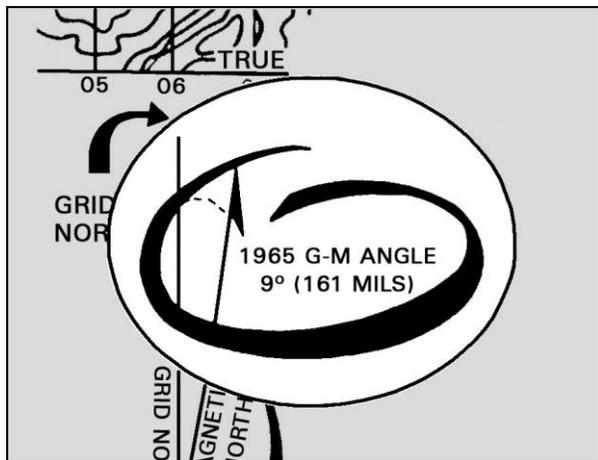


Figure 2. G-M Angle

3. The G-M angle depends on where you are in the world. Convert azimuths when given an easterly G-M angle **Figure 3 (Converting azimuths with easterly G-M angle)**.

- To convert a magnetic azimuth to a grid azimuth, add the value of the G-M angle to the magnetic azimuth.
- To convert a grid azimuth to a magnetic azimuth, subtract the G-M angle from the grid azimuth.

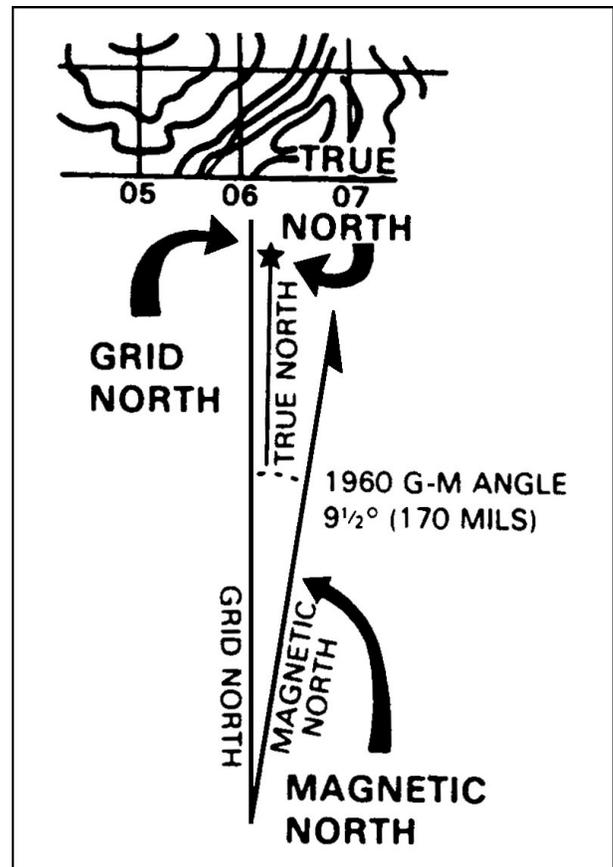


Figure 1. Declination Diagram

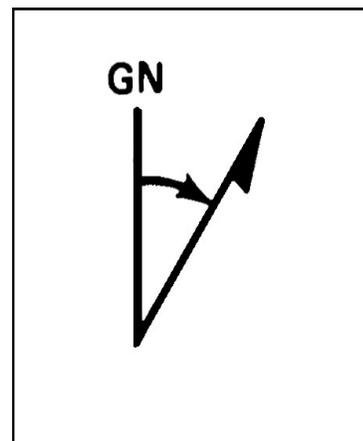


Figure 3. Converting azimuths with easterly G-M angle

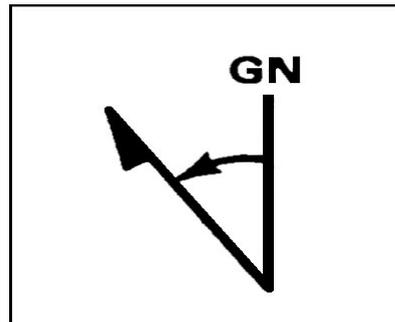
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**4. Convert azimuths when given a westerly G-M angle **Figure 4**  
(Converting azimuths with westerly G-M angle)**

**a.** To convert a magnetic azimuth to a grid azimuth, subtract the value of the G-M angle from the magnetic azimuths.

**b.** To convert a grid azimuth to a magnetic azimuth, add the value of the G-M angle to the grid azimuth.



**Figure 4.** Converting azimuths with westerly G-M angle.

**EVALUATION PREPARATION: SETUP:** Give the Soldier a standard 1:50,000 scale military map, a piece of paper, a pencil, and a magnetic and grid azimuth to convert.

**BRIEF SOLDIER:** Tell the Soldier to convert the magnetic azimuth to a grid azimuth and the grid azimuth to a magnetic azimuth.

### **REFERENCES**

**REQUIRED**

FM 3-25.26

**RELATED**

**LINKS**

[WWW.TRAININGNCO.COM](http://WWW.TRAININGNCO.COM)