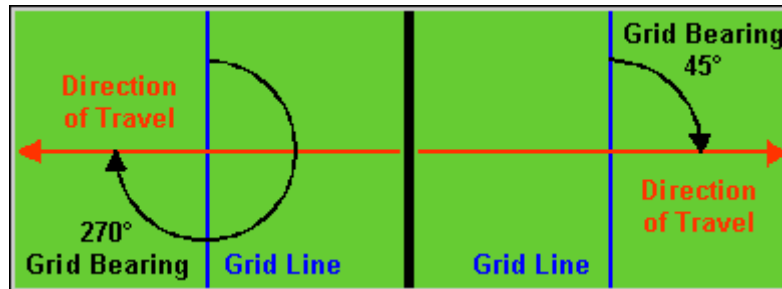


Grid Bearings to Magnetic Bearings

What is a Grid Bearing?

When you take directional information of say a path (or any straight line between two points) from a map and put it onto a compass it is called a grid bearing. The grid bearing can be described as the angle in a clockwise direction between grid north and the path (or straight line). This is why it is known as a grid bearing.

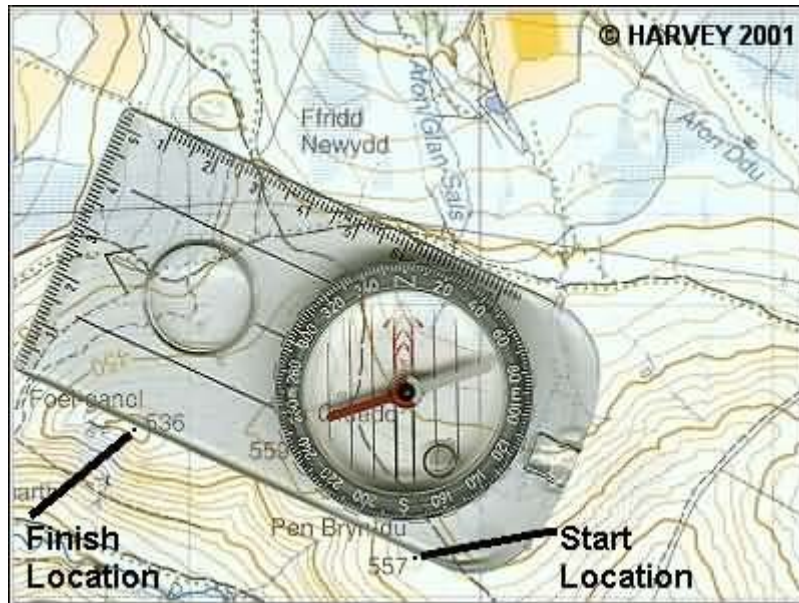


What is a Magnetic Bearing?

There is a difference between grid north as drawn on a map and magnetic north, the north the compass needle points to. The difference is called the magnetic variation. The magnetic bearing can be described as the angle in a clockwise direction between magnetic north and the path (or straight line). This is why it is known as a magnetic bearing. With the magnetic variation added to the grid bearing on the compass, and it correctly orientated, the compass will point in the direction you wish to travel.

When there is good visibility and you can easily identify landmarks in the surrounding countryside and compare them to the symbols on the map there is not usually any reason to take and use a magnetic bearing. However, in poor visibility or when the path is not clear, taking a magnetic bearing can help you walk in the correct direction to get to your destination.

1. Imagine you know you are on top of Pen Bryn-du in a heavy fog and you want to walk to a Foel-ganol (as shown below). Firstly identify both peaks on the map and imagine a straight line joining them both. Lay the compass on the map with the edge of the **BASE PLATE** aligned with the imaginary straight line and, most importantly, with the **DIRECTION OF TRAVEL ARROW** pointing at your destination, ie Foel-ganol.



2. With the **BASE PLATE** in this position on the map, turn the **COMPASS HOUSING** only (not the **BASE PLATE**) so the **ORIENTING ARROW** points to the top of the map and the **ORIENTING LINES** are parallel with the grid lines on the map.



3. Take the compass off the map. At the **INDEX LINE** read the grid bearing. The grid bearing is the angle between the north-south grid line and the imaginary line between your start location (Pen Bryn-du) and your destination (Foel-ganol). In this example the grid bearing is 294°.

4. As we are converting a direction on the map to a direction on the compass we must take into consideration the magnetic variation. This is the difference between grid north (as drawn on the map) and magnetic north (as used by the compass). The magnetic variation for the area can be found in the key on the side of a map. For this exercise we shall use a magnetic variation of 5°.



5. In the UK you must add the magnetic variation to the grid bearing to get a magnetic bearing "From grid to mag, add" (this may not be the case in other countries around the world). By adding 5° to the grid bearing at the **INDEX LINE** gives us a magnetic bearing of 299°.

6. Finally, turn the whole compass around until the north end of the **COMPASS NEEDLE** points in the same direction as the **ORIENTING ARROW**. The way the **DIRECTION OF TRAVEL ARROW** is pointing is the direction you must walk in to get to Foel-ganol, off you go!