

Foundation GCSE: Bearings

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Write the three-figure bearing for due North.
2. Write the three-figure bearing for due East.
3. Write the three-figure bearing for due South.
4. Write the three-figure bearing for due West.
5. Find the three-figure bearing of North-East.
6. Find the three-figure bearing of South-West.
7. If the bearing of point A from point B is 065° , what is the bearing of point B from point A ?
8. If the bearing of point X from point Y is 210° , what is the bearing of point Y from point X ?
9. A ship sails on a bearing of 120° for 5 km, then changes course by turning clockwise through 90° . What is its new three-figure bearing?
10. The bearing of town P from town Q is 048° . Calculate the acute angle formed by line QP with the North line at point Q .
11. Two points A and B are positioned such that the bearing of A from B is 315° . Calculate the interior angle at B measured clockwise from North.
12. A hiker walks 4 km on a bearing of 050° from camp, then turns and walks 4 km on a bearing of 140° . Find the angle between the two paths at the turning point.
13. The bearing of a lighthouse L from a boat B is 072° . Find the bearing of the boat B from the lighthouse L .
14. An aircraft flies from base on a bearing of 155° . After a period of flight, it turns onto a bearing of 245° . Find the angle of turn.
15. The bearing of P from Q is 110° and the bearing of R from Q is 200° . Calculate the size of angle PQR .
16. A yacht sails from a buoy on a bearing of 035° for 8 miles, then sails on a bearing of 125° for 6 miles. Calculate the direct straight-line distance from the yacht to the buoy.
17. The bearing of town A from town B is 130° , and the bearing of town C from town B is 250° . Calculate the reflex angle ABC measured around point B .
18. In a triangle XYZ , the bearing of Y from X is 040° , and the bearing of Z from Y is 160° . Calculate the bearing of X from Z .
19. A radar station detects a plane at a bearing of 065° at a distance of 120 km. A second plane is detected at a bearing of 155° at the same distance of 120 km. Calculate the direct distance between the two planes.
20. A surveyor measures three points A , B , and C . The bearing of B from A is 055° , and the bearing of C from B is 305° . If triangle ABC is isosceles with $AB = BC$, calculate the true bearing of A from C .

Answers & Worked Solutions

1. 000° : Due North is defined as 000° .
2. 090° : Due East is 090° .
3. 180° : Due South is 180° .
4. 270° : Due West is 270° .
5. 045° : Halfway between North (000°) and East (090°).
6. 225° : $180^\circ + 45^\circ = 225^\circ$.
7. 245° : $65^\circ + 180^\circ = 245^\circ$.
8. 030° : $210^\circ - 180^\circ = 030^\circ$.
9. 210° : $120^\circ + 90^\circ = 210^\circ$.
10. 048° : The acute angle from North is the bearing itself.
11. 315° : Given directly by the bearing value.
12. 90° : $140^\circ - 50^\circ = 90^\circ$.
13. 252° : $72^\circ + 180^\circ = 252^\circ$.
14. 90° : $245^\circ - 155^\circ = 90^\circ$.
15. 90° : $200^\circ - 110^\circ = 90^\circ$.
16. 10 miles : Angle is 90° , so $\sqrt{8^2 + 6^2} = \sqrt{100} = 10$.
17. 240° : Interior angle is 120° ; reflex angle is $360^\circ - 120^\circ = 240^\circ$.
18. 300° : Calculated via consecutive interior angle rules around vertex Y .
19. 169.7 km : Isosceles right triangle with sides 120, giving $120\sqrt{2} \approx 169.7$ km.
20. 275° : Polygon angle sum and directional vector analysis.