FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

G15: Bearings

Solve problems involving bearings and scale

20 marks · 25 minutes · Calculator allowed

1) A ship sails 12 km on a bearing of 090° and then 5 km on a bearing of 180°. Find its distance from the start and the bearing it must sail to return.

.....

[Question 1: 4 marks]

2) B is 8 km from A on a bearing of 040°. C is 6 km from B on a bearing of 130°. Find the distance AC and the bearing of C from A.

.....

[Question 2: 4 marks]

3) A plane flies 300 km on a bearing of 060°. How far east of its start is it?

..... km

[Question 3: 3 marks]

4) On a map with scale 1 : 50 000, Q is 7 cm from P on a bearing of 210°. Find the real distance and the bearing of P from Q.

.....

[Question 4: 2 marks]

5) A lighthouse L is 10 km due north of a harbour H. A ship S is due east of H, and the bearing of S from L is 135°. How far is the ship from the harbour?

..... km

[Question 5: 3 marks]

6) Two ships leave port at the same time, one sailing due north at 12 km/h and the other due east at 16 km/h. How far apart are they after 2 hours?

..... km

[Question 6: 2 marks]

7) A walker goes 3 km north and then 4 km east. On what bearing must she walk to return directly to the start?

..... °

[Question 7: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	13 km; 293°	$\sqrt{144+25}$ (P1); 13 (A1); angle $\tan^{-1}\frac{12}{5}$ = 67.4° (P1); 360 − 67.4 (A1).
2	10 km; 077°	Angle ABC = 90° (P1); AC = 10 (A1); $\tan^{-1}\frac{6}{8}$ = 36.9 (P1); 40+36.9 (A1).
3	260	300 sin 60° (P1, P1); A1.
4	3.5 km; 030°	B1 each.
5	10	Triangle LHS is right-angled with a 45° angle (P1, P1); A1.
6	40	Sides 24 and 32 (P1); A1.
7	233	$180 + \tan^{-1}\frac{4}{3}$ (P1); A1.