FOUNDATION & HIGHER

SAME AT BOTH TIERS

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

G15: Bearings and scale drawings

Reason with bearings and scale drawings

20 marks · 25 minutes · Calculator allowed

1) Explain why the bearing of *A* from *B* differs by 180° from the bearing of *B* from *A*.

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[Question 1: 2 marks]

2) Kim says the bearing of *B* from *A* is 060°, so the bearing of *A* from *B* is 120°. Explain her mistake.

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[Question 2: 2 marks]

3) Explain why bearings are written with three figures.

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[Question 3: 1 marks]

4) Q is due west of P. Explain why the bearing of Q from P is 270°.

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[Question 4: 1 marks]

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5) A ship sails 6 km east and then 8 km north.

(a) Show that it is 10 km from its start.

(2)

(b) Show that its bearing from the start is about 037°.

(2)

[Question 5: 4 marks]

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6) Explain why south-east is a bearing of 135°.

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[Question 6: 2 marks]

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7) A map has scale 1 : 50 000. Show that 7 cm on the map is 3.5 km.

[Question 7: 2 marks]

8) Explain why angles are not changed on a scale drawing.

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[Question 8: 2 marks]

9) *B* is 10 km from *A* on a bearing of 090°. *C* is 10 km from *A* on a bearing of 180°. Show that the bearing of *C* from *B* is 225°.

[Question 9: 2 marks]

10) Explain why a bearing of 400° is never used.

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[Question 10: 1 marks]

11) Explain why a north line is drawn at each point when working with bearings.

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[Question 11: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Explanation	The two directions are opposite (C1); north lines are parallel (C1).
2	240°	Should add 180° (C1); B1.
3	Explanation	So that every bearing has the same form, e.g. 045° (C1).
4	Explanation	Three quarters of a full turn clockwise from north (C1).
5	(a) Shown (b) Shown	(a) $\sqrt{36+64}$ (M1); C1. (b) $\tan^{-1}\frac{6}{8} = 36.9°$ (M1); C1.
6	Explanation	Halfway between east 090° and south 180° (C2).
7	Shown	350 000 cm (M1); C1.
8	Explanation	Scale drawings are similar to the real thing (C2).
9	Shown	Triangle *ABC* is right-angled isosceles, angle *ABC* = 45° (M1); 180 + 45 (C1).
10	Explanation	It is more than a full turn; same as 040° (C1).
11	Explanation	Bearings are measured from north at that point (C1).