4.16 Bearings: 30-minute Pack

EDEXCEL 1MA1 · Calculator allowed · about 30 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

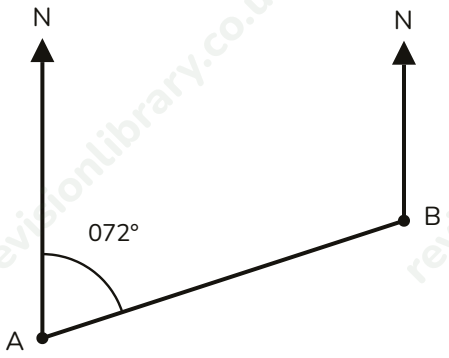
1 Write down the bearing of C from A.
The direction from A to C is due south.

(Total for Question 1 is 1 mark)

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2 The bearing of one town from another is given below. In each case, work out the back bearing (the bearing of the first town from the second).

Diagram NOT accurately drawn



(a) The bearing of Bristol from Cardiff is 072. Work out the bearing of Cardiff from Bristol. **(2)**

.....

(b) The bearing of York from Leeds is 205. Work out the bearing of Leeds from York. **(2)**

.....

(c) The bearing of Truro from Exeter is 148. Work out the bearing of Exeter from Truro. **(2)**

.....

(Total for Question 2 is 6 marks)

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3 Aisha is walking between two campsites shown on a map. The distance between the campsites on the map is 4.8 cm. The scale of the map is 1 : 25000. Work out the real distance between the campsites, giving your answer in kilometres.

(Total for Question 3 is 3 marks)

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4 Which of these is a correctly written three-figure bearing?

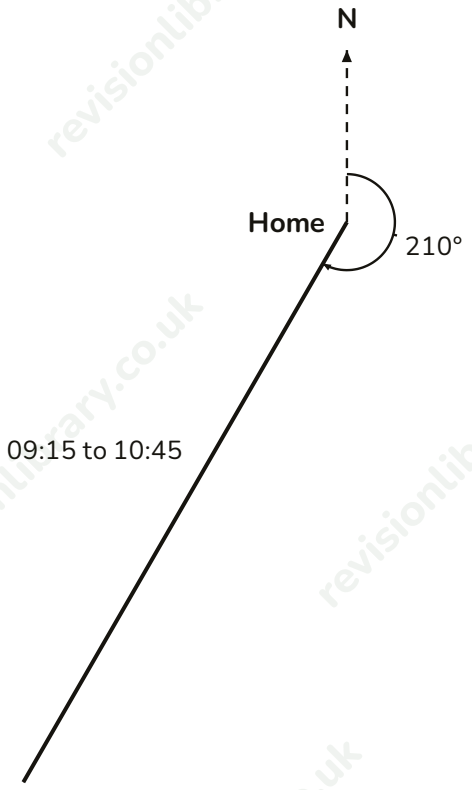
- ☐ A) 45
- ☐ B) 450
- ☐ C) 045
- ☐ D) N45E

(Total for Question 4 is 1 mark)

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5 Freya leaves home at 09:15 and cycles on a bearing of 210 at a constant speed of 18 km/h. She stops cycling at 10:45.

Diagram NOT accurately drawn



(a) Calculate the distance Freya has cycled. **(2)**

.....

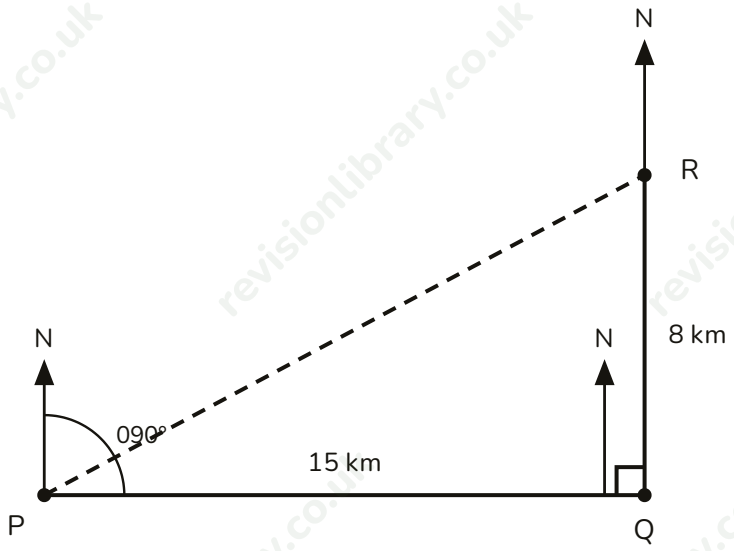
(b) State the three-figure bearing Freya would need to cycle on to return directly home. **(1)**

(Total for Question 5 is 3 marks)

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6 A ship sails from port P on a bearing of 090 for 15 km to reach point Q. It then sails on a bearing of 000 for 8 km to reach point R. The journey from P to Q to R takes 1 hour 30 minutes in total.

Diagram NOT accurately drawn



(a) Calculate the direct distance from P to R. **(3)**

(b) Calculate the bearing of R from P, giving your answer to the nearest degree. **(3)**

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(c) Work out the ship's average speed for the whole journey from P to R (travelling via Q), giving your answer in km/h correct to 1 decimal place. **(3)**

.....

(Total for Question 6 is 9 marks)

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Mark scheme · 4.16 Bearings: 30-minute Pack

Question 1

180 degrees cao	**B1**

Answer: 180 degrees

Question 2

(a) 072 + 180 oe	**M1**
(a) 252 cao	**A1**

(a) Answer: 252

(b) 205 - 180 oe	**M1**
(b) 025 cao	**A1**

(b) Answer: 025

(c) 148 + 180 oe	**M1**
(c) 328 cao	**A1**

(c) Answer: 328

Question 3

4.8 x 25000 (= 120000) oe	**M1**
(dep) convert to km, e.g. 120000 / 100000 oe	**M1**
1.2 km cao	**A1**

Answer: 1.2 km

Question 4

C selected	**B1**

Answer: C) 045

Question 5

(a) time = 1.5 hours (09:15 to 10:45), distance = 18 x 1.5 oe	**M1**
(a) 27 km cao	**A1**

(a) Answer: 27 km

(b) 030 cao	**B1**

(b) Answer: 030

Question 6

(a) $15^2 + 8^2$ oe (= 289)	**M1**
(a) $\sqrt{\text{their } 289}$	**M1**
(a) 17 km cao	**A1**

(a) Answer: 17 km

(b) tan(angle QPR) = 8 / 15 oe	**M1**
(b) (dep) angle QPR = $\tan^{-1}(8/15)$ = awrt 28.1	**M1**
(b) 90 - 28.1 = 062 awrt (ft their angle QPR), three-figure bearing	**A1**

(b) Answer: 062

(c) 15 + 8 (= 23) oe, total distance travelled	**M1**
(c) (dep) their 23 / 1.5	**M1**
(c) 15.3 km/h awrt cao	**A1**

(c) Answer: 15.3 km/h

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