IGCSE · Cambridge (CIE) · Maths

1 hour 18 questions

Calculator Questions

Bearings, Constructions & Scale Drawings

Bearings / Scale / Constructing Triangles

Easy (3 questions)	/5
Medium (5 questions)	/12
Hard (10 questions)	/49
Total Marks	**/66**

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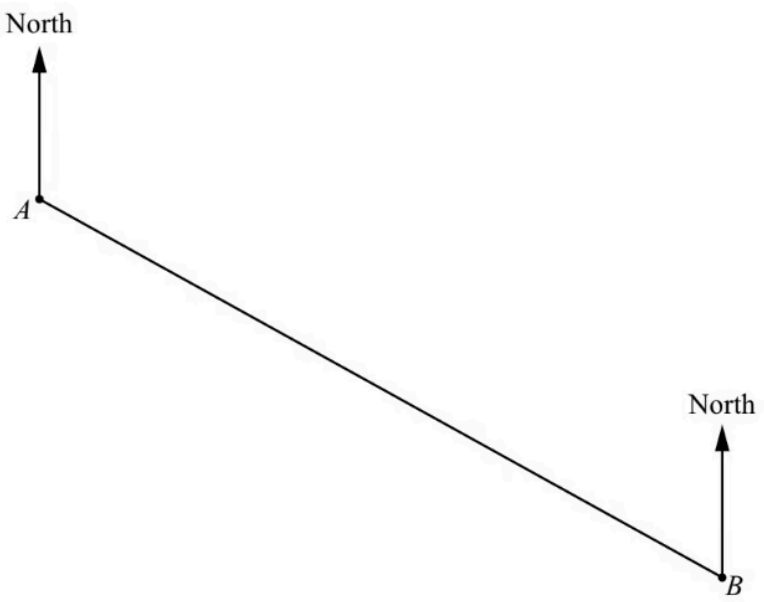
Easy Questions

1



Two towns, *A* and *B*, are shown on a map.
The scale of the map is 1 cm to 3 km.

Find the actual distance between *A* and *B*.

..... km

(1 mark)

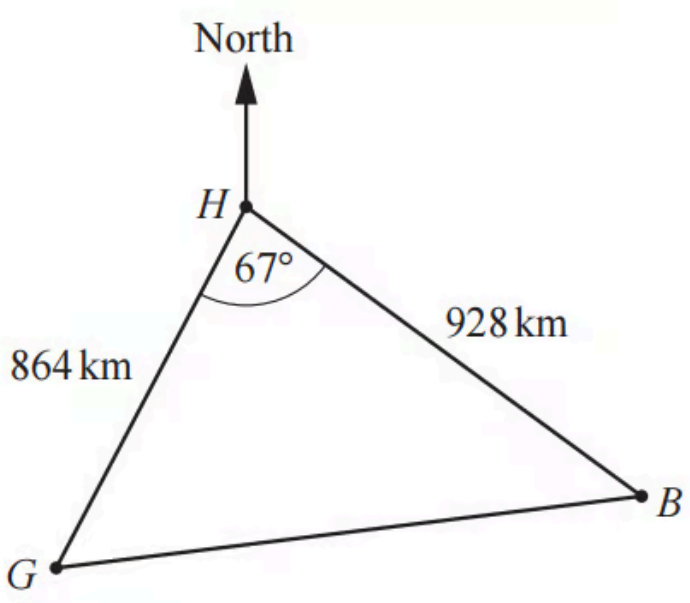
2 In triangle *ABC*, *BC* = 7.6 cm and *AC* = 6.2 cm.

Using a ruler and compasses only, construct triangle *ABC*. Leave in your construction arcs.
The side *AB* has been drawn for you.

(2 marks)

3 The diagram shows the positions of three cities, Geneva (*G*), Budapest (*B*) and Hamburg

(*H*).



NOT TO SCALE

The bearing of Budapest from Hamburg is 133°.

Find the bearing of Hamburg from Budapest.

(2 marks)

Medium Questions

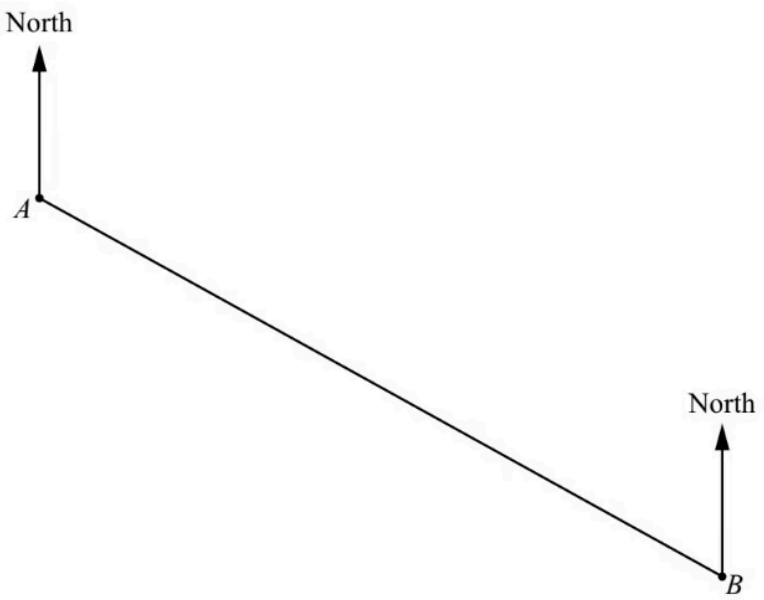
1

In triangle PQR, QR = 10 cm and PR = 11 cm.

Using a ruler and compasses only, construct triangle PQR. The line PQ has been drawn for you.

(2 marks)

2 (a)



Two towns, *A* and *B*, are shown on a map.

Measure the bearing of *B* from *A*.

(1 mark)

(b) Calculate the bearing of *A* from *B*.
You must show all your working.

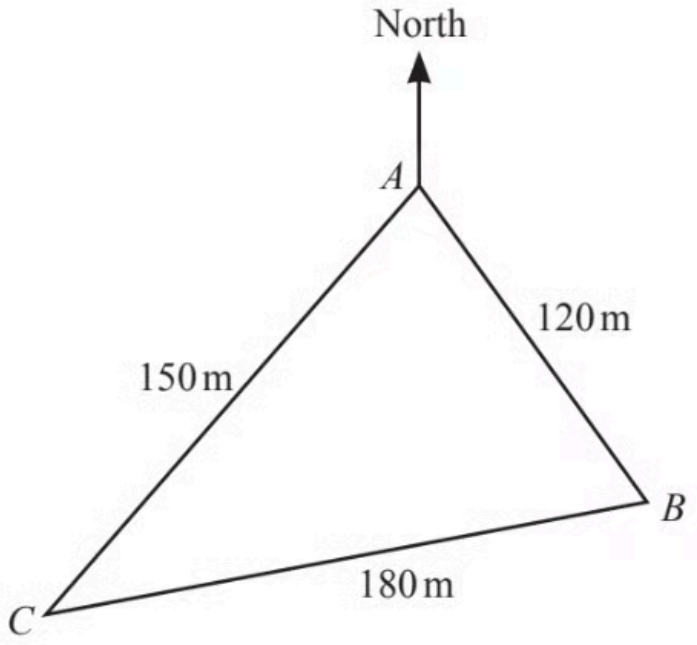
(2 marks)

3 In triangle *ABC*, *BC* = 7.6 cm and *AC* = 6.2 cm.

Using a ruler and compasses only, construct triangle *ABC*. Leave in your construction arcs.
The side *AB* has been drawn for you.

(2 marks)

4



NOT TO SCALE

The diagram shows a triangular field, *ABC*, on horizontal ground.

The angle *BAC* is equal to 82.8°.

The bearing of *C* from *A* is 210°.

i) Find the bearing of *B* from *A*.

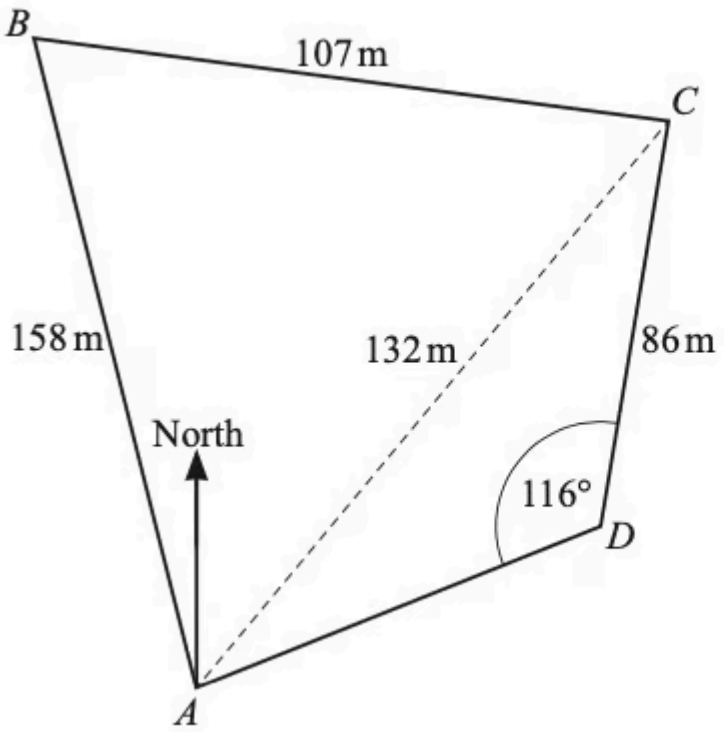
[1]

ii) Find the bearing of *A* from *B*.

[2]

(3 marks)

5



NOT TO SCALE

The diagram shows a field, *ABCD*, on horizontal ground.

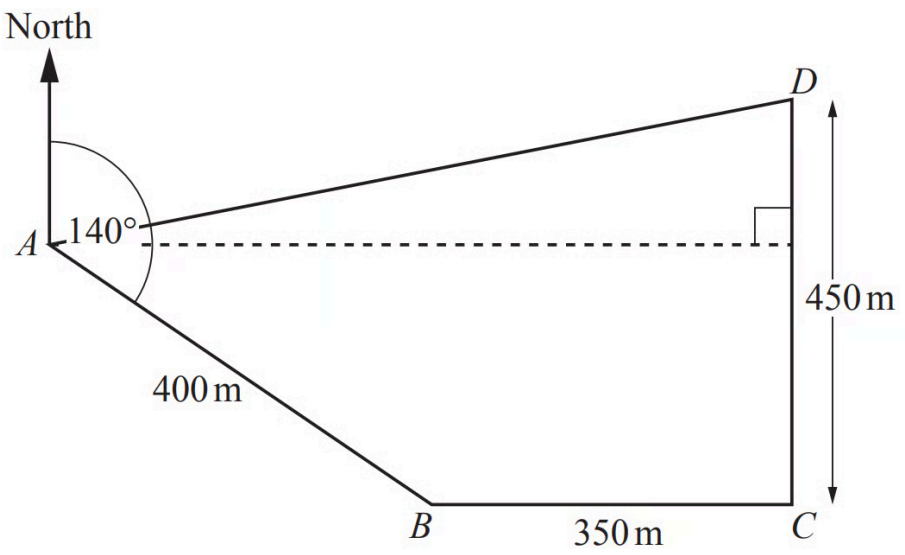
The angle *CAD* is 35.8° and the bearing of *D* from *A* is 070°.

Find the bearing of *A* from *C*.

(2 marks)

Hard Questions

1



The diagram shows a field *ABCD*.
The bearing of *B* from *A* is 140°.
C is due east of *B* and *D* is due north of *C*.
AB = 400m, *BC* = 350m and *CD* = 450m.

Find the bearing of *D* from *B*.

(2 marks)

2 The scale of a map is 1 : 10 000 000.
On the map, the area of Slovakia is 4.9 cm^2.

Calculate the actual area of Slovakia.
Give your answer in square kilometres.

..... km^2

(3 marks)

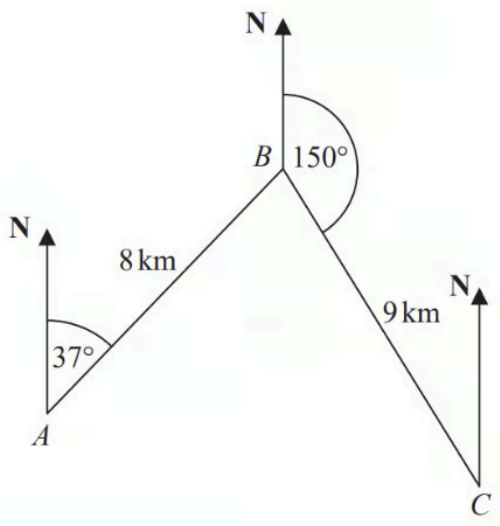
3 On a map with scale 1 : 25000, the area of a lake is 33.6 square centimetres.

Calculate the actual area of the lake, giving your answer in square kilometres.

..... km^2

(2 marks)

4 The diagram shows the positions of three towns, Acton (A), Barston (B) and Chorlton (C).



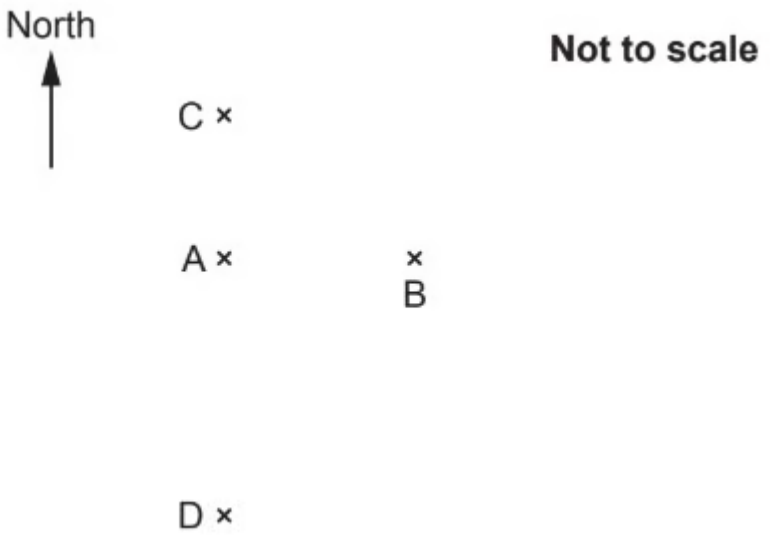
Barston is 8 km from Acton on a bearing of $037°$. Chorlton is 9km from Barston on a bearing of $150°$.

Find the bearing of Chorlton from Acton.
Give your answer correct to 1 decimal place.
You must show all your working.

(5 marks)

5 (a) A, B, C and D are four towns.

B is 25 kilometres due East of A.
C is 25 kilometres due North of A.
D is 45 kilometres due South of A.



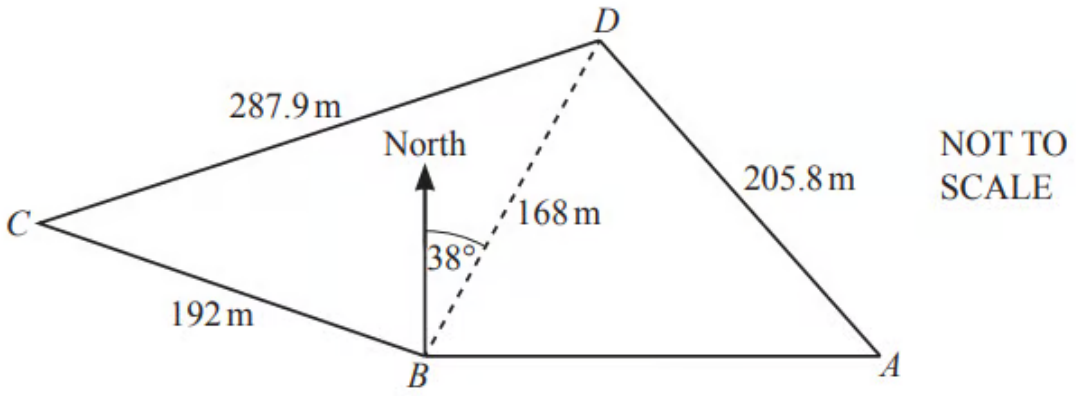
Work out the bearing of B from C.

(2 marks)

(b) Calculate the bearing of D from B.

(4 marks)

6



The diagram shows a field, *ABCD*, on horizontal ground. *BC* = 192 m, *CD* = 287.9 m, *BD* = 168 m and *AD* = 205.8 m.

Angle *CBD* = 106°.

i) The bearing of *D* from *B* is 038°.

Find the bearing of *C* from *B*.

[1]

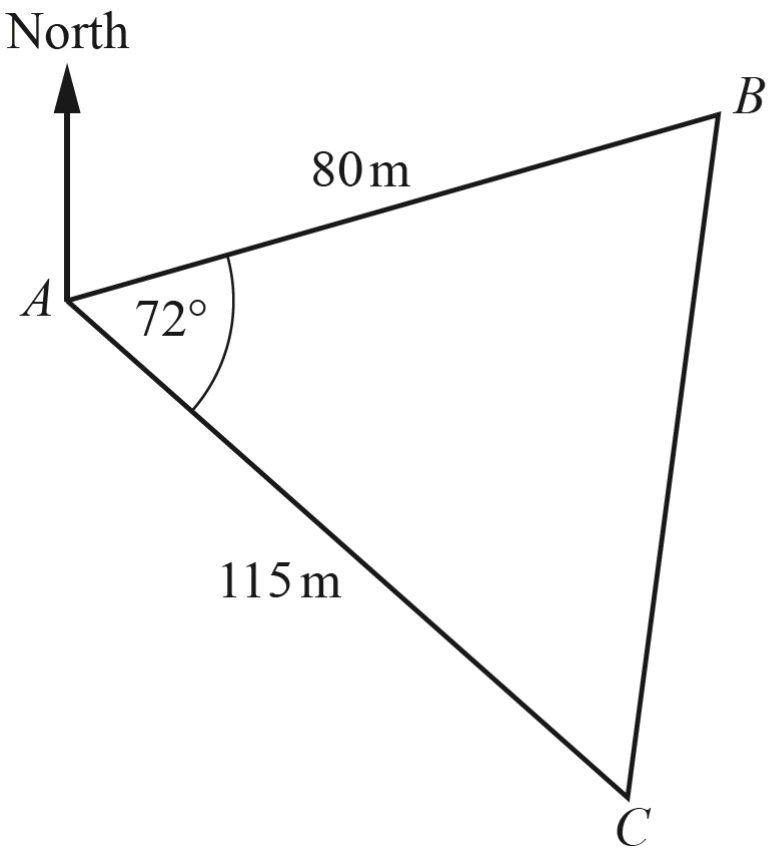
ii) *A* is **due east** of *B*.

Calculate the bearing of *D* from *A*.

[5]

(6 marks)

7 (a)



NOT TO SCALE

The diagram shows the positions of three points A, B and C in a field.

Show that BC is 118.1 m, correct to 1 decimal place.

(3 marks)

(b) Calculate angle ABC.

Angle ABC = ...

(3 marks)

(c) The bearing of C from A is 147°. Find the bearing of

i) A from B,

[3]

ii) B from C.

[2]

(5 marks)

8 The diagram shows the positions of three ships, A, B and C.

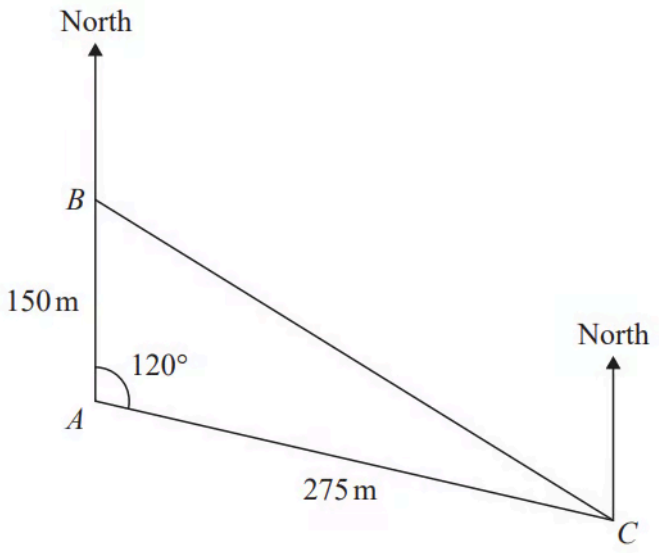


Diagram **NOT** accurately drawn

Ship B is due north of ship A.

The bearing of ship C from ship A is 120°

Calculate the bearing of ship C from ship B.
Give your answer correct to the nearest degree.

(5 marks)

9 A , B and C are three towns.

The bearing of B from A is 105°
The bearing of C from B is 230°

The distance of C from A is 180 km.
The distance of C from B is 95 km.

Calculate the distance of B from A.
Give your answer correct to 3 significant figures.

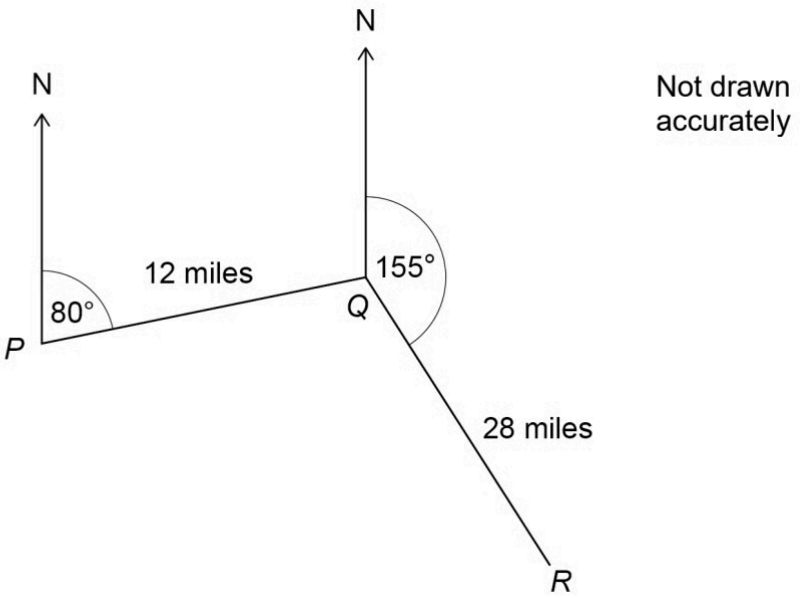
.....km

(5 marks)

10 A ship sails from P to Q and then from Q to R.

Q is 12 miles from P, on a bearing of 080°

R is 28 miles from Q, on a bearing of 155°



Work out the direct distance from P to R.

(4 marks)