Write your name here

Surname	Other names

In the style of:
Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics

Locus and Constructions

Higher Tier

GCSE style questions arranged by topic

Paper Reference
1MA1/1H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may not be used.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The total mark for this paper is
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

1 (a) Draw the locus of all points which are equidistant from the points C and D.

(2)

(b) Draw the locus of all points that are exactly 3 cm from the line EF.

(2)

(Total for Question 1 is 4 marks)

2 Draw the locus of all points which are equidistant from the lines XY **and** XZ.

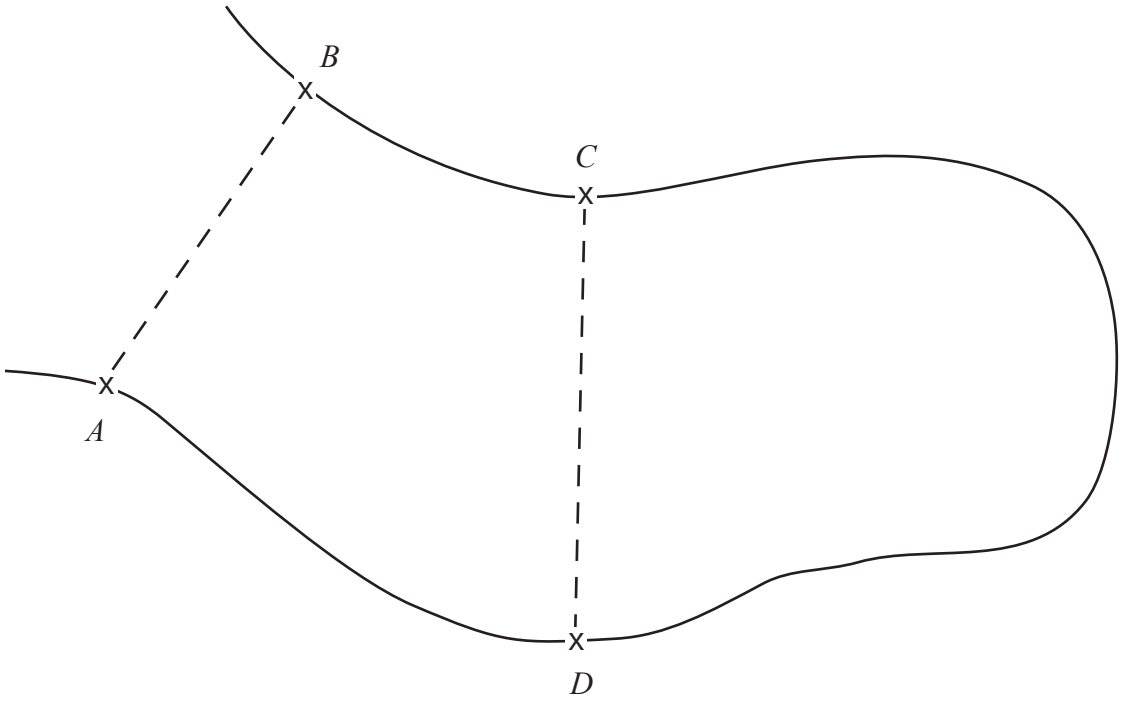
(Total for Question 2 is 2 marks)

3 The map shows part of a golf course.

A golfer has to hit a ball so that its path between AB and CD is a straight line

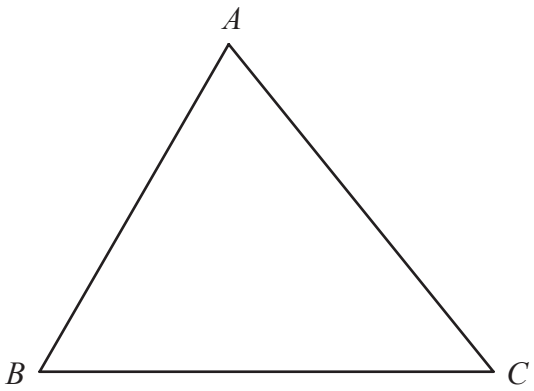
and is always the same distance from *A* as from *B*

On the map, draw the path the ball should take.



(Total for Question 3 is 2 marks)

4



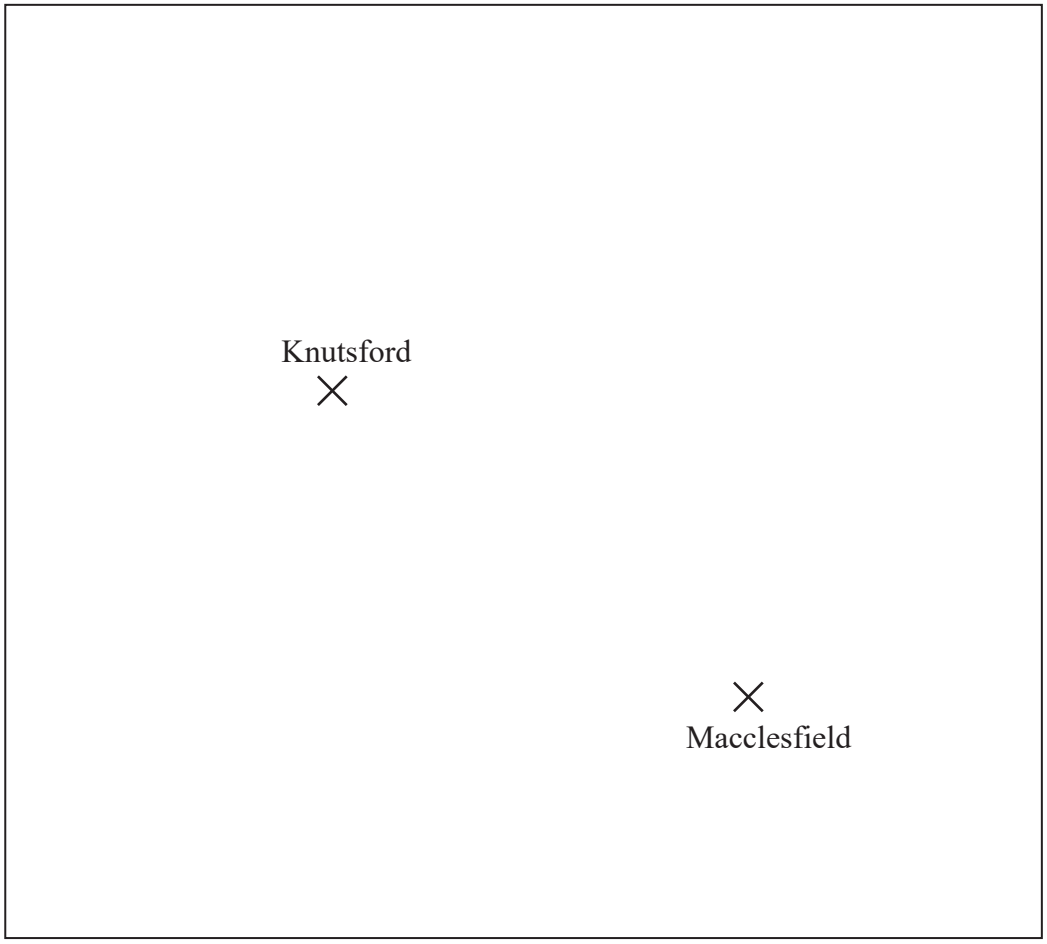
ABC is a triangle.

Shade the region inside the triangle which is **both**

less than 4 centimetres from the point *B*
and closer to the line *AC* than the line *AB*.

(Total for Question 4 is 4 marks)

5 Here is a map.
The map shows two towns, Knutsford and Macclesfield.



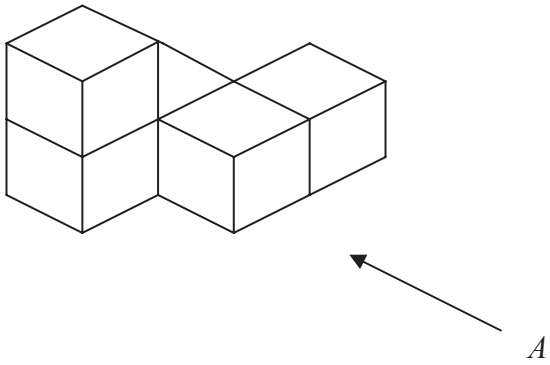
Scale: 1 cm represents 10 km

A company is going to build a glasshouse.

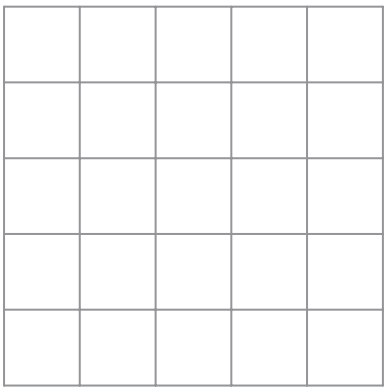
The glasshouse will be less than 30 km from Knutsford **and** less than 50 km from Macclesfield. Shade the region on the map where the company can build the glasshouse.

(Total for Question 5 is 3 marks)

6 The diagram represents a solid made from 5 identical cubes.

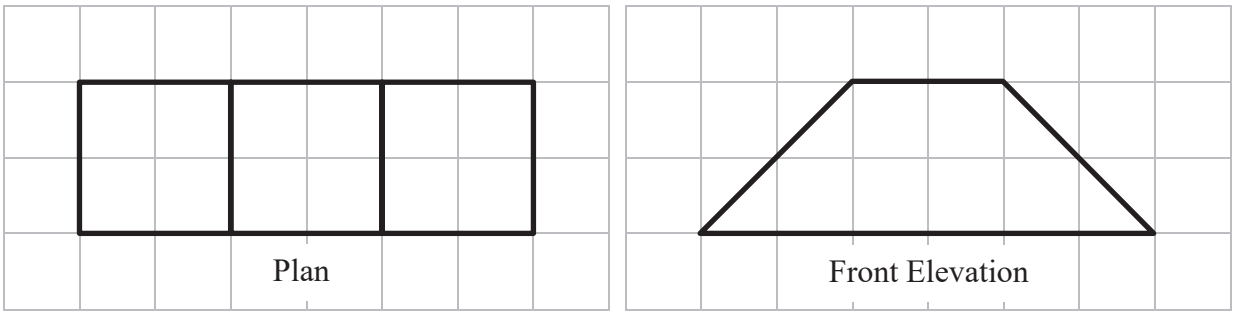


On the grid below, draw the view of the solid from direction *A*.

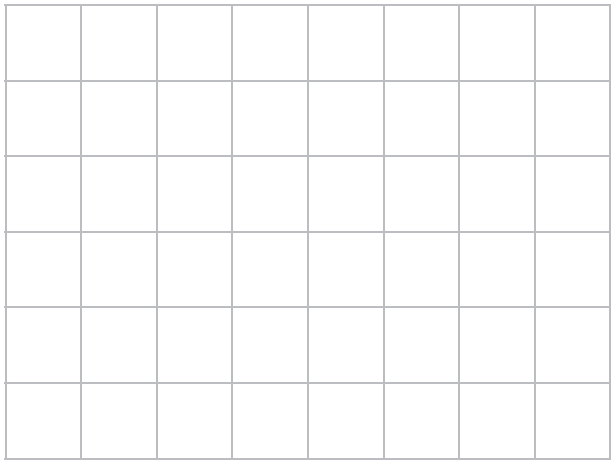


(Total for Question 6 is 2 marks)

7 Here are the plan and front elevation of a solid shape.



(a) On the grid below, draw the side elevation of the solid shape.



(2)

(b) In the space below, draw a sketch of the solid shape.

(2)

(Total for Question 7 is 4 marks)

8 In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.

You must show all your construction lines.

One side of the triangle has already been drawn for you.

(Total for Question 8 is 2 marks)

9 Here is a sketch of a quadrilateral.

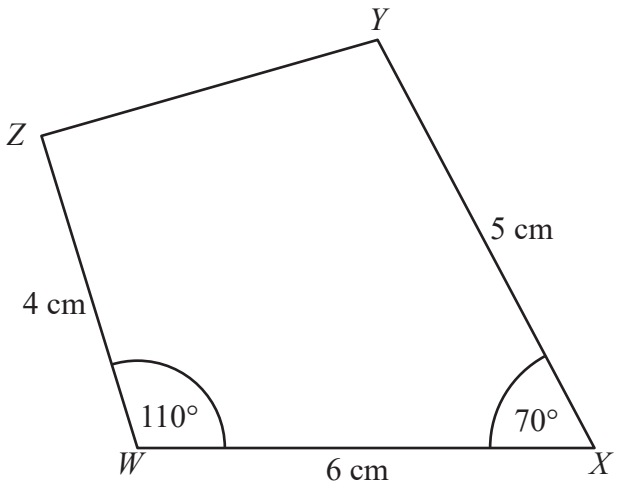


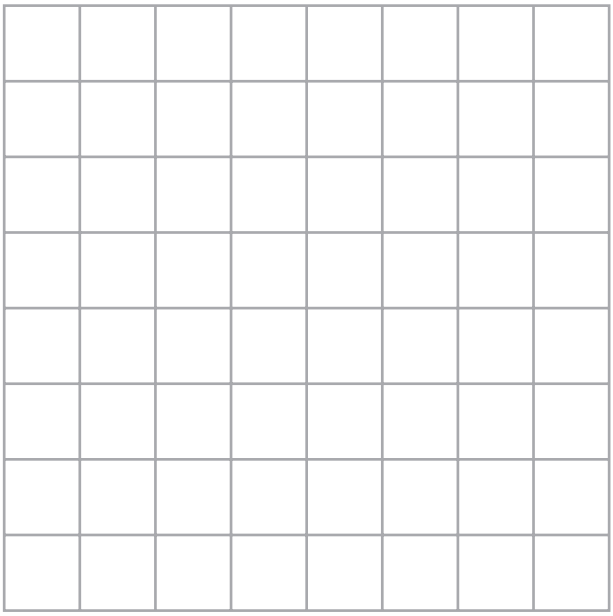
Diagram **NOT** accurately drawn

Make an accurate drawing of the quadrilateral *WXYZ* in the space below.
The point *W*, marked with a cross (×), has been drawn for you.

W ×

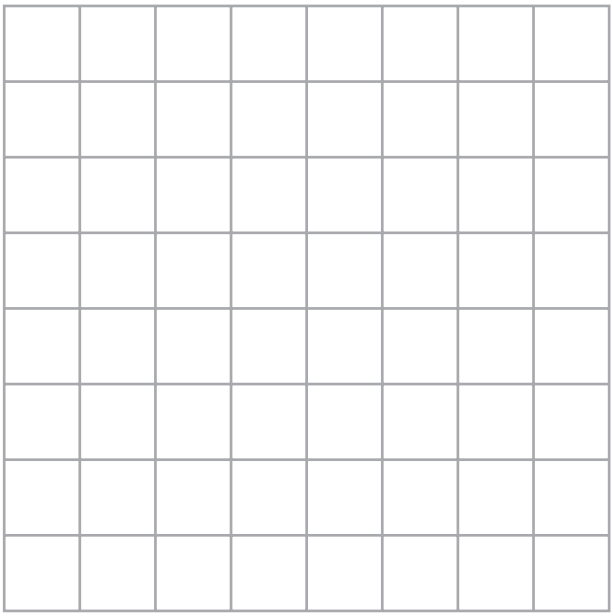
(Total for Question 9 is 4 marks)

10 (a) On the grid, draw an isosceles triangle.



(1)

(b) On the grid, draw a rectangle with an area of 20 cm^2.



(2)

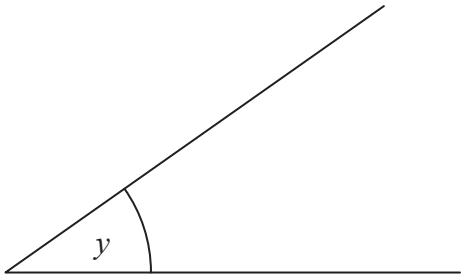
(Total for Question 10 is 3 marks)

11 (a) Measure the length of the line AB.
Give your answer in centimetres.

..... cm

(1)

(b) Measure the size of angle y.



..... °

(1)

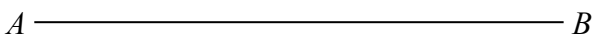
(c) In the space below, draw accurately a circle of radius 4 cm.
Use the point C as the centre of your circle.

(1)

(Total for Question 11 is 3 marks)

12 Use ruler and compasses to **construct** the perpendicular bisector of the line AB**.**

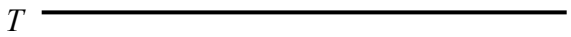
You must show all your construction lines.



(2)

(Total for Question 12 is 2 marks)

13 Use ruler and compasses to **construct** an angle of 30° at T.
You **must** show all your construction lines.

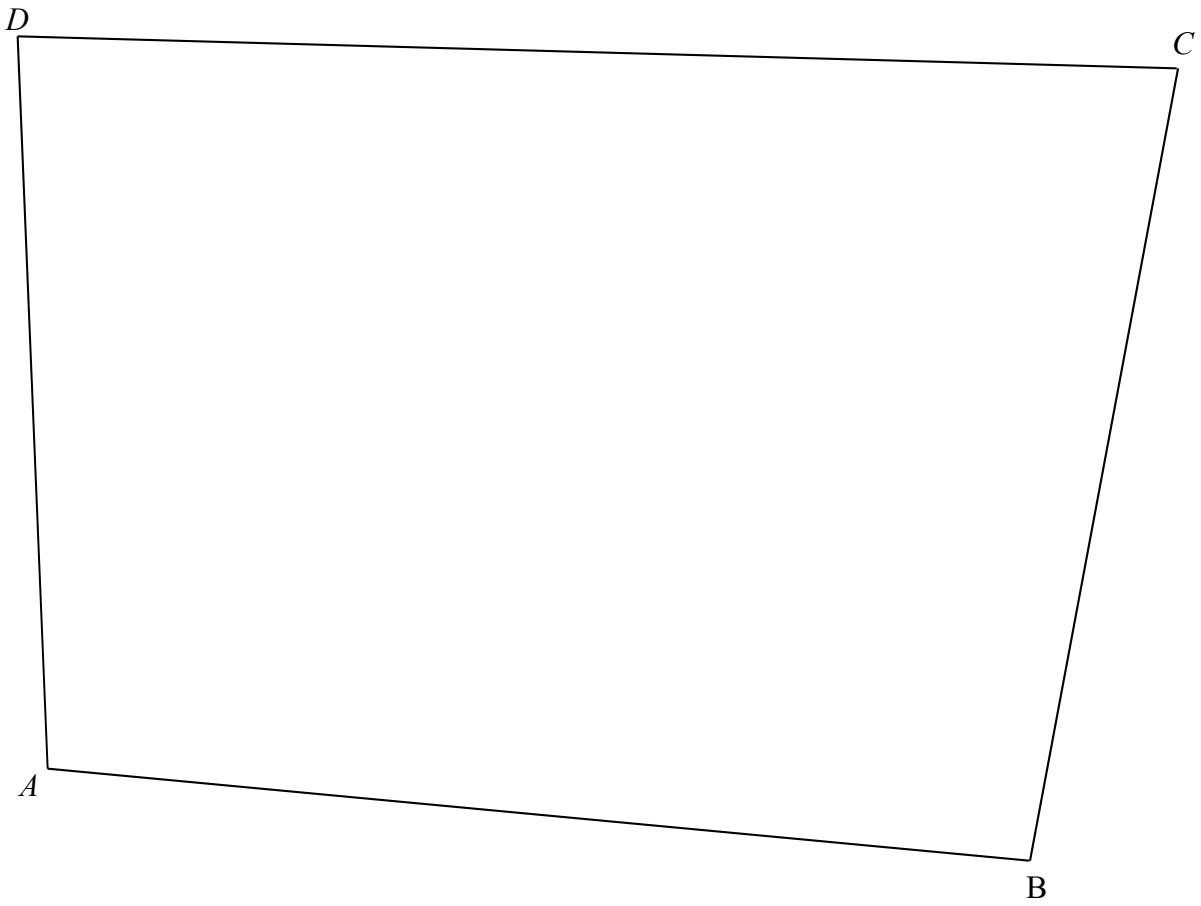


(Total for Question 13 is 3 marks)

14 Use ruler and compasses to answer this question.

Point P is

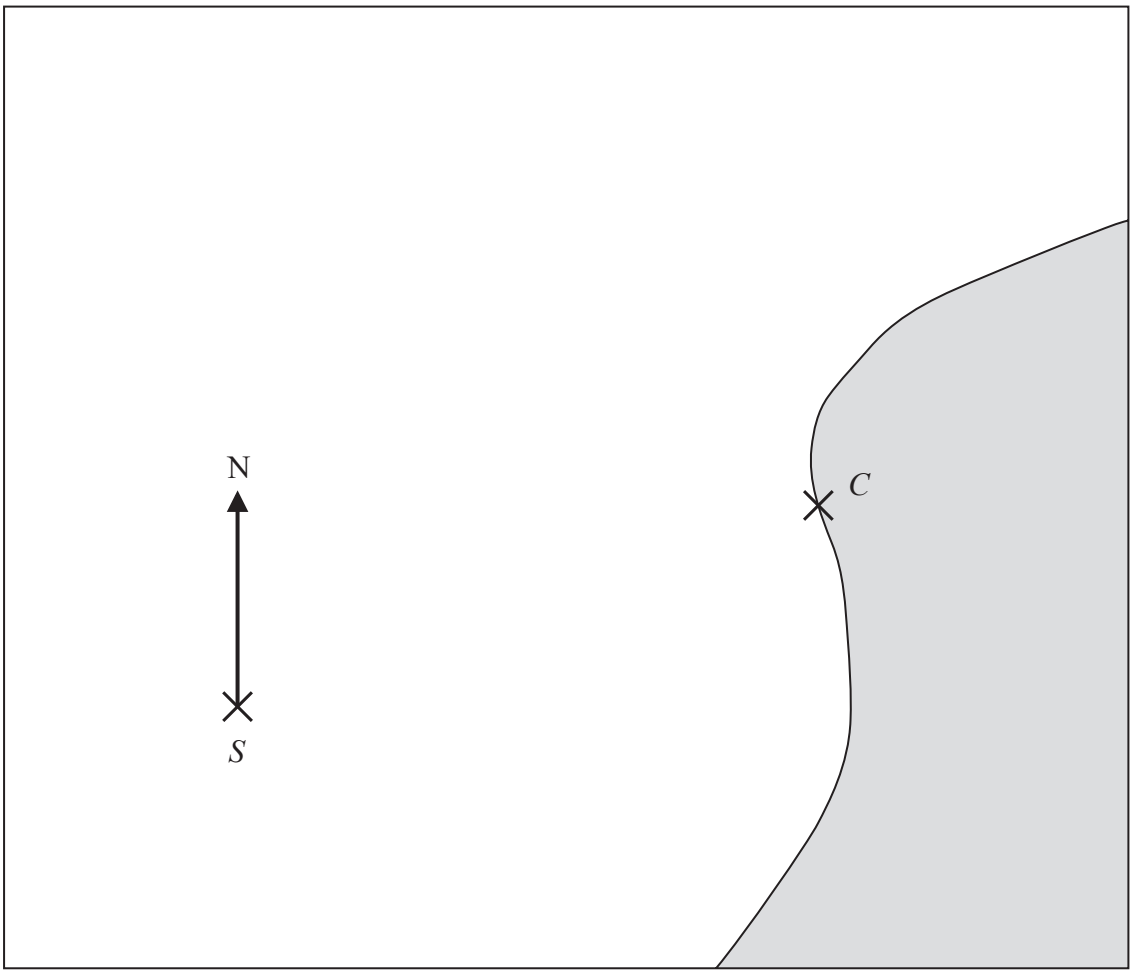
- the same distance from AB and AD
- 6 cm from C.



Show the position of P on the diagram.

(Total for Question 14 is 3 marks)

15 Here is a map.
The position of a ship, *S*, is marked on the map.



Scale 1 cm represents 100 m

Point *C* is on the coast.
Ships must not sail closer than 500 m to point *C*.

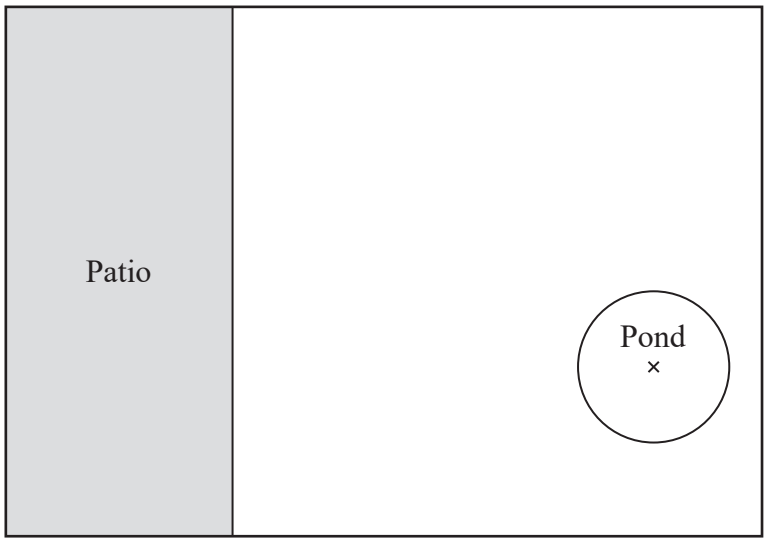
The ship sails on a bearing of 037°

Will the ship sail closer than 500 m to point *C* ?
You must explain your answer.

(Total for Question 14 is 3 marks)

16 The diagram shows a garden in the shape of a rectangle.

The scale of the diagram is 1 cm represents 2 m.



Scale: 1 cm represents 2 m

Dominic is going to plant a tree in the garden.

The tree must be more than 3 metres from the patio
and more than 6 metres from the centre of the pond.

On the diagram, shade the region where Dominic can plant the tree.

(Total for Question 15 is 3 marks)

17 Here is a scale drawing of a rectangular garden *ABCD*.

Scale: 1 cm represents 1 metre.

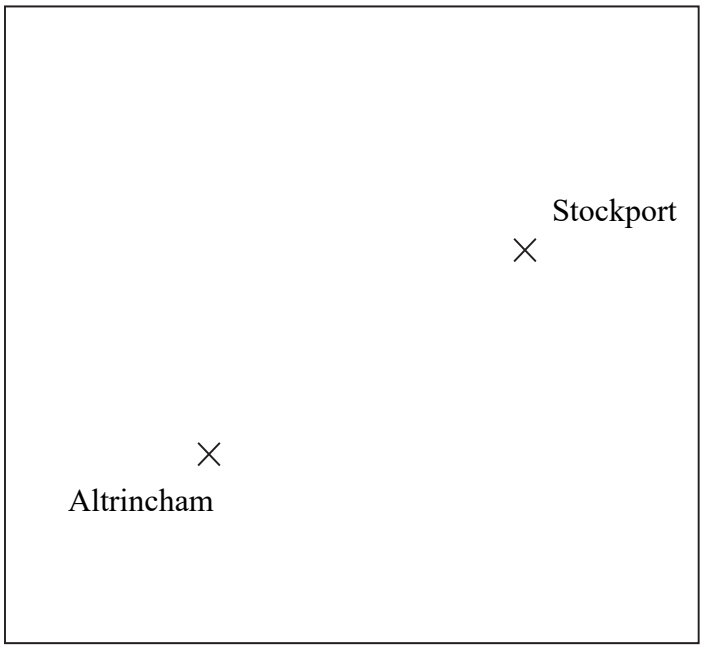
Chris wants to plant a tree in the garden

at least 5 m from point *C*, nearer to *AB* than to *AD*
and less than 3m from *DC*.

On the diagram, shade the region where Chris can plant the tree.

(Total for Question 16 is 4 marks)

18 The diagram shows the positions of two shops, *A* and *B*, on a map.



The scale of the map is 1 cm represents 5 km. Sophie wants to build a warehouse. The warehouse needs to be less than 10 km from Altrincham and less than 20 km from Stockport.

Show by shading where Sophie can build the warehouse.

(Total for Question 9 is 3 marks)

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