

Loci

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Name _____

Total marks: **20**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You will need a ruler and a pair of compasses. Diagrams are drawn accurately: print at 100%.

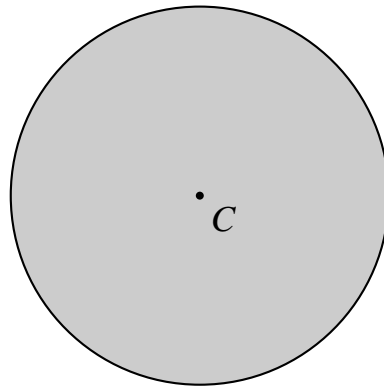
- 1** Draw the locus of all points that are 4 cm from the point P .

•
 P

(1)

(Total for Question 1 is 1 mark)

- 2 Ellis draws this diagram.



Ellis says,

“The shaded region is the locus of points exactly 2.5 cm from C.”

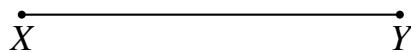
Ellis is wrong.

Explain why.

(1)

(Total for Question 2 is 1 mark)

- 3 Draw the region of points that are less than 2 cm from the line segment XY .



(2)

(Total for Question 3 is 2 marks)

- 4 Use ruler and compasses to construct the locus of points that are the same distance from A as from B .
You must show all your construction lines.

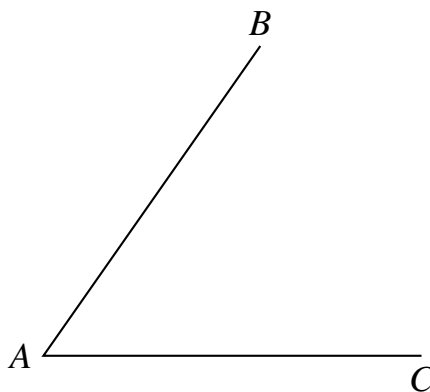
$\dot{A}$

$\dot{B}$

(2)

(Total for Question 4 is 2 marks)

- 5 Use ruler and compasses to construct the locus of points that are the same distance from AB as from AC .
You must show all your construction lines.



(2)

(Total for Question 5 is 2 marks)

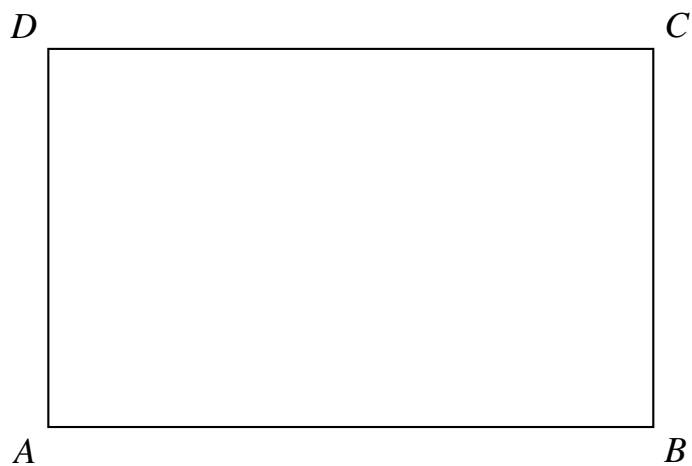
- 6 The map shows two phone masts, M and N .
The scale of the map is 1 cm represents 10 km.
Each mast sends a signal up to 30 km.
Show, by shading, the region that gets a signal from **both** masts.



(2)

(Total for Question 6 is 2 marks)

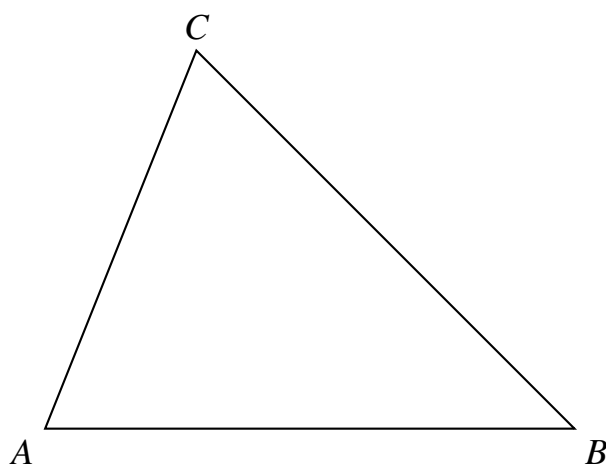
- 7** Shade the region of points inside the rectangle that are more than 4 cm from D and closer to AB than to CD .



(3)

(Total for Question 7 is 3 marks)

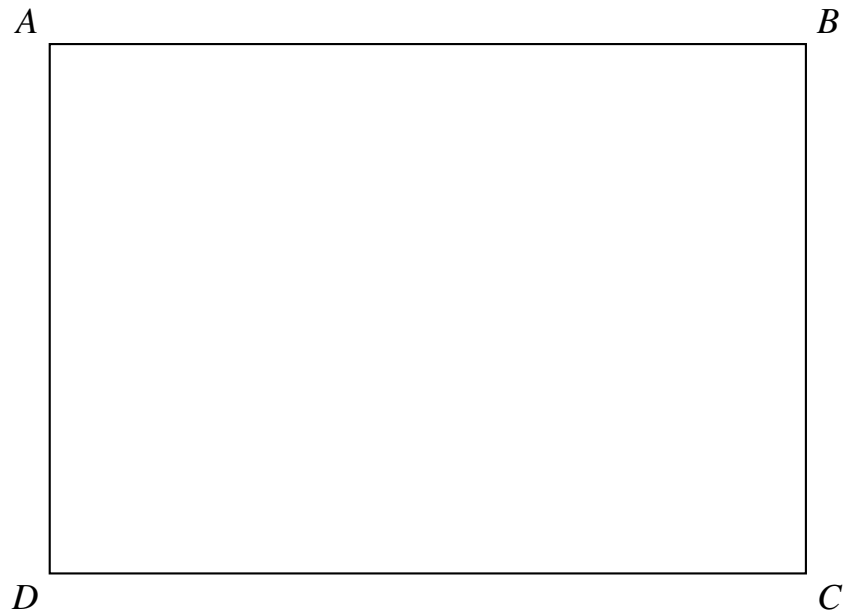
- 8** Shade the region inside triangle ABC of the points that are more than 3 cm from B and nearer to side AB than to side AC . Label the region R .



(3)

(Total for Question 8 is 3 marks)

- 9 The diagram shows a scale plan of a car park $ABCD$.
The scale is 1 cm represents 5 m.
An electric car charging point is going to be put in the car park.
The charging point has to be
closer to B than to D
more than 20 m from the side CD .
Show, by shading, the region where the charging point can go.



(4)

(Total for Question 9 is 4 marks)
