

Loci

For AQA GCSE Mathematics (8300) • Foundation tier

Name _____

Total marks: **23**

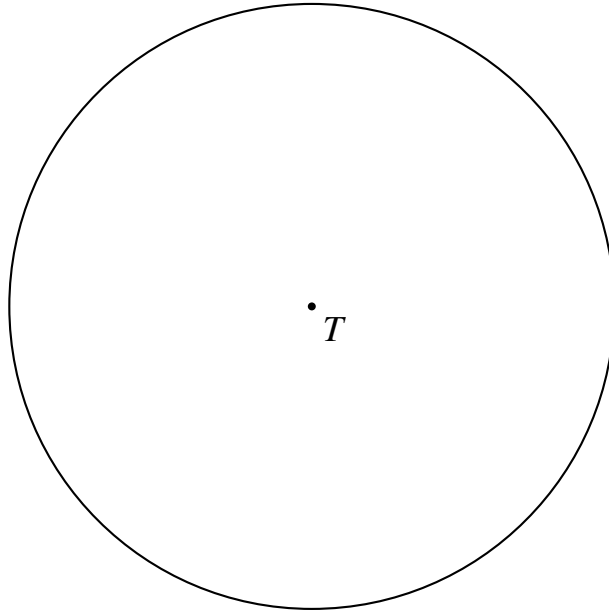
Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You will need a ruler and a pair of compasses. Diagrams are drawn accurately: print at 100%.

- 1** Draw the locus of all points that are exactly 3 cm from the point P .

•
 P

[1 mark]

- 2 Omar is asked to draw the locus of points that are 4 km from the town T .
The scale of the map is 1 cm represents 2 km.
Omar draws this circle.



Omar has made a mistake.
What mistake has he made?

[1 mark]

- 3 Shade the region inside the rectangle that is less than 3 cm from A .



[2 marks]

- 4 Draw the locus of points that are the same distance from A as from B .
You must show your construction arcs.



[2 marks]

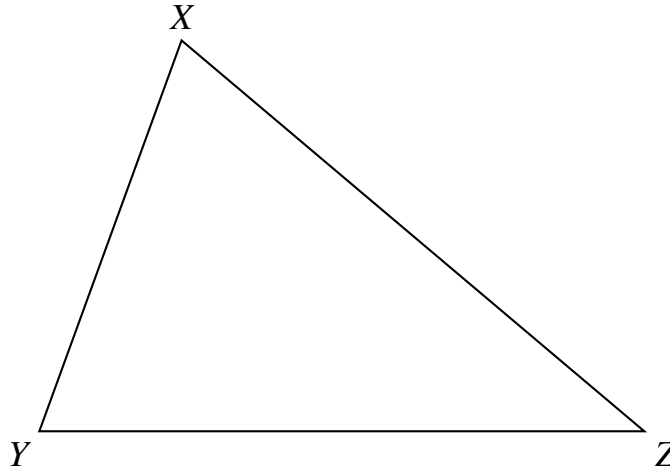
- 5 The diagram shows a plan of a garden in the shape of a triangle XYZ .

A straight hedge is planted in the garden.

It starts at the corner Y and ends on the side XZ .

Every point on the hedge is the same distance from side YX as from side YZ .

Use ruler and compasses to construct the line of the hedge.



[2 marks]

- 6 Construct the region that lies within 2 cm of the line.



[3 marks]

- 7 The diagram shows the positions of two wifi routers, A and B , in an office.
The scale is 1 cm represents 2 m.

The signal from router A reaches up to 6 m.

The signal from router B reaches up to 8 m.

Shade the region that gets a signal from router A but **not** from router B .

$\dot{A}$

$\dot{B}$

[2 marks]

- 8 The diagram shows a plan of a rectangular garden $ABCD$.
The scale is 1 cm represents 2 m.

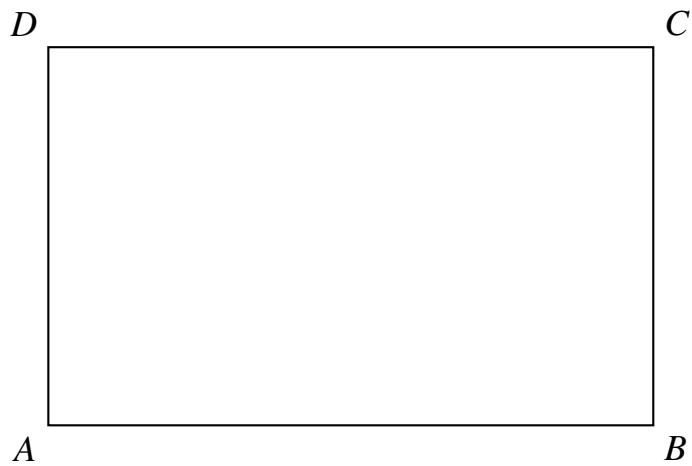
A shed is to be put in the garden.

The shed must be
closer to C than to D

and

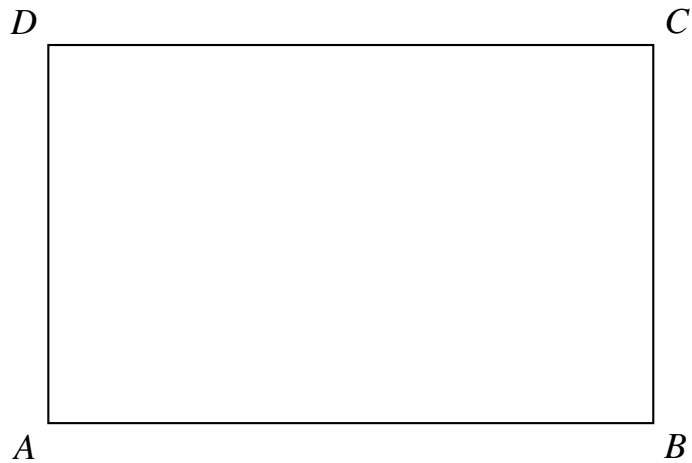
less than 9 m from B .

Shade the region where the shed can be put.



[3 marks]

- 9 Use ruler and compasses to answer this question.
Point T is inside the rectangle.
 T is
the same distance from A as from B
and
the same distance from side AB as from side AD .
Mark the position of T with a cross ($\times$).



[3 marks]

- 10** The scale diagram shows two buoys, A and B , and a dive boat D .

Use a ruler and compasses in this question.

A diver is looking for a lost anchor.

The anchor is

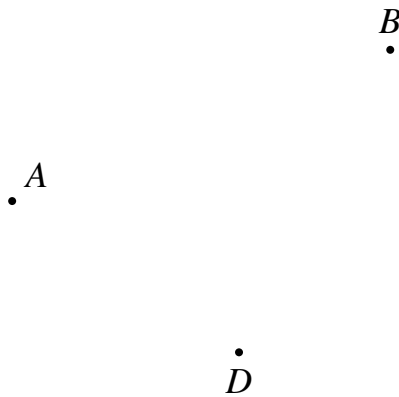
less than 2 km from the dive boat D

and

closer to buoy A than to buoy B .

Label the region, R , where the anchor could be.

Show all your construction lines.



Scale: 1 cm represents 500 m

[4 marks]