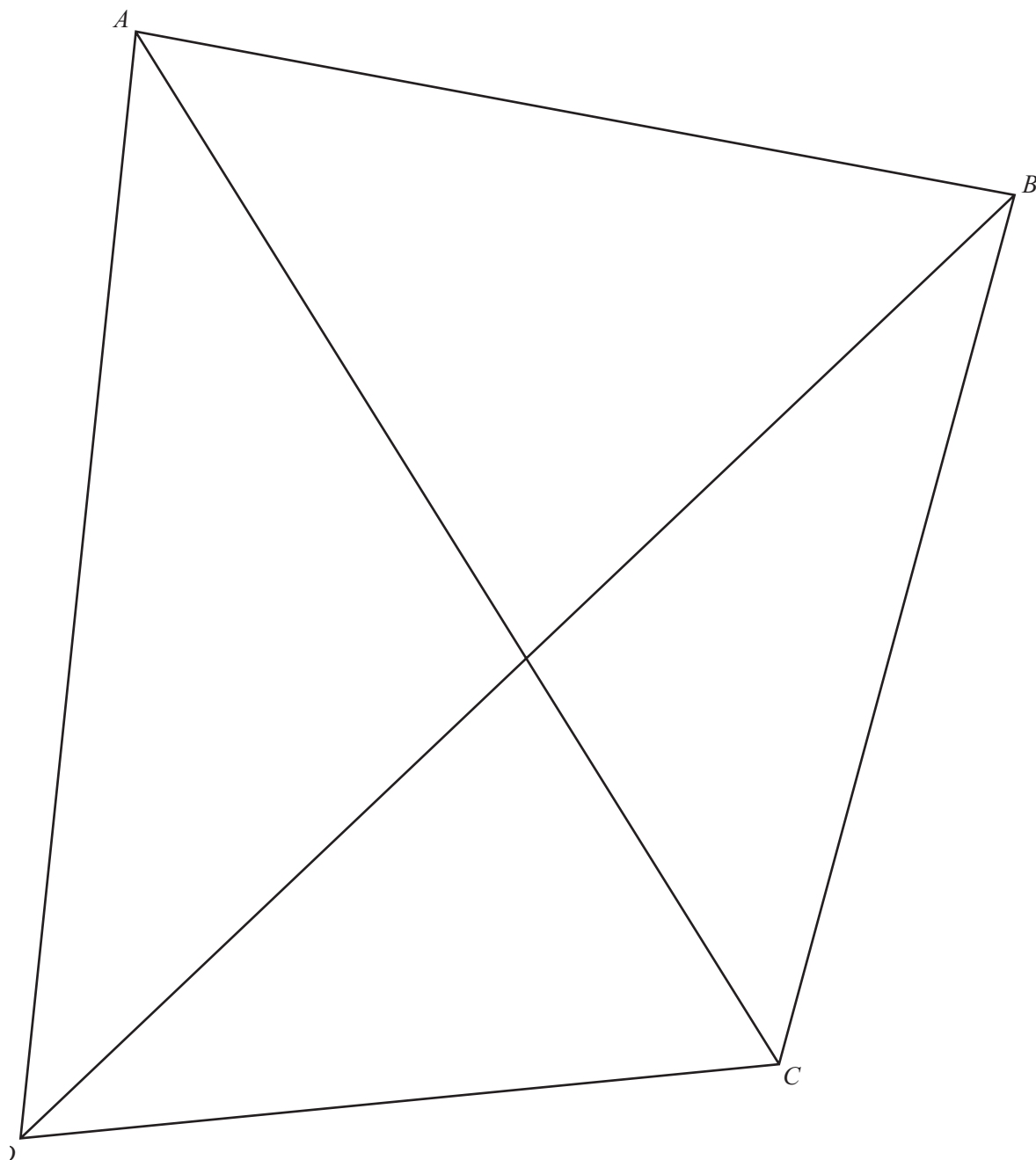


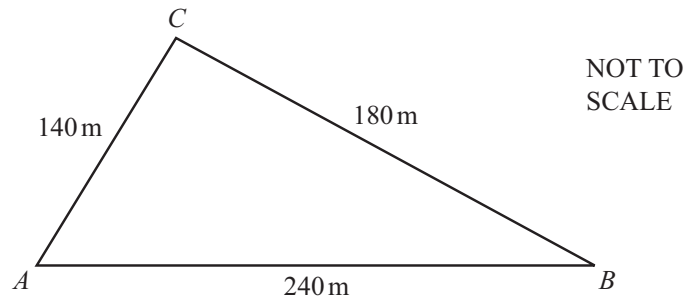
1)

**Using a straight edge and compasses only**, draw the locus of all points inside the quadrilateral  $ABCD$  which are equidistant from the lines  $AC$  and  $BD$ .

Show clearly all your construction arcs.



2)



The boundary of a park is in the shape of a triangle  $ABC$ .  
 $AB = 240\text{ m}$ ,  $BC = 180\text{ m}$  and  $CA = 140\text{ m}$ .

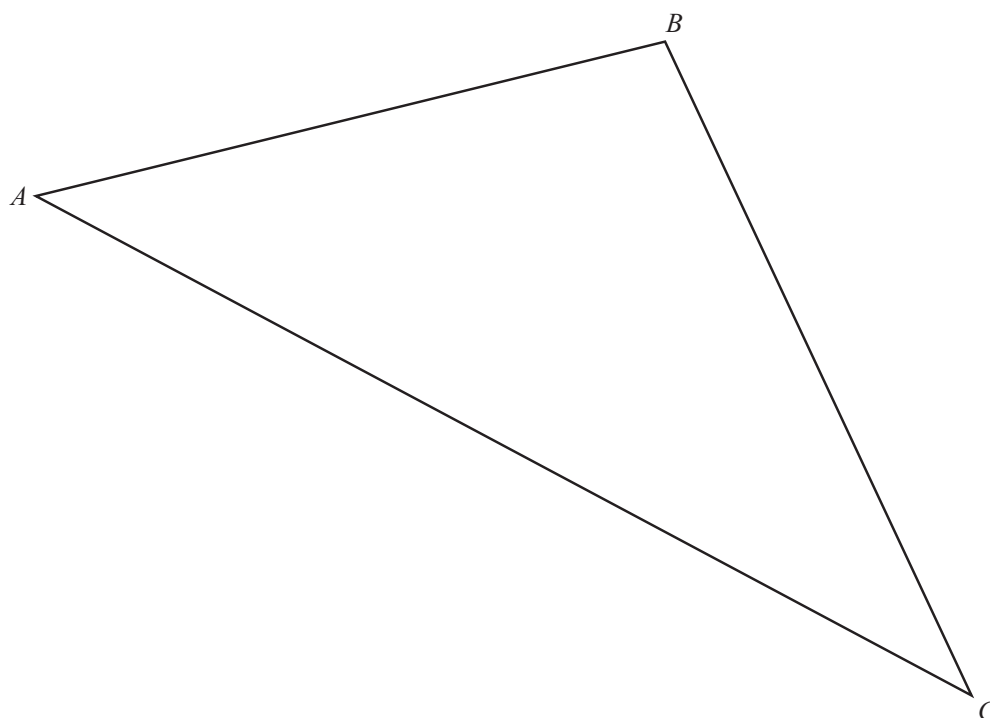
**In part (a), show clearly all your construction arcs.**

- (a) (i) Using a scale of 1 centimetre to represent 20 metres, **construct** an **accurate** scale drawing of triangle  $ABC$ . The line  $AB$  has already been drawn for you.



- (ii) Using a straight edge and compasses only, **construct** the bisector of angle  $ACB$ . [2]  
 Label the point  $D$ , where this bisector meets  $AB$ . [2]
- (iii) Using a straight edge and compasses only, construct the locus of points, inside the triangle, which are equidistant from  $A$  and from  $D$ . [2]
- (iv) Flowers are planted in the park so that they are nearer to  $AC$  than to  $BC$  **and** nearer to  $D$  than to  $A$ .  
 Shade the region inside your triangle which shows where the flowers are planted. [1]

3)



The diagram shows a farmer's field  $ABC$ .

The farmer decides to grow potatoes in the region of the field which is

- nearer to  $A$  than to  $C$

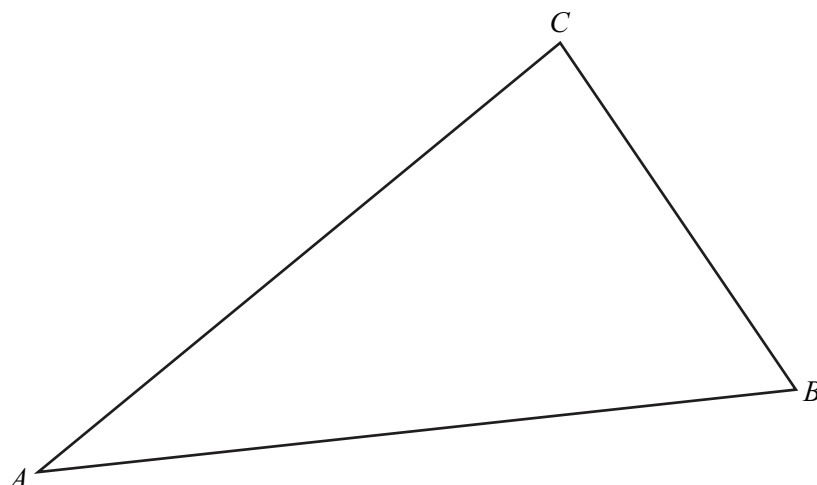
**and**

- nearer to  $AB$  than to  $AC$ .

Using a **straight edge and compasses only**, construct two loci accurately and shade this region on the diagram.

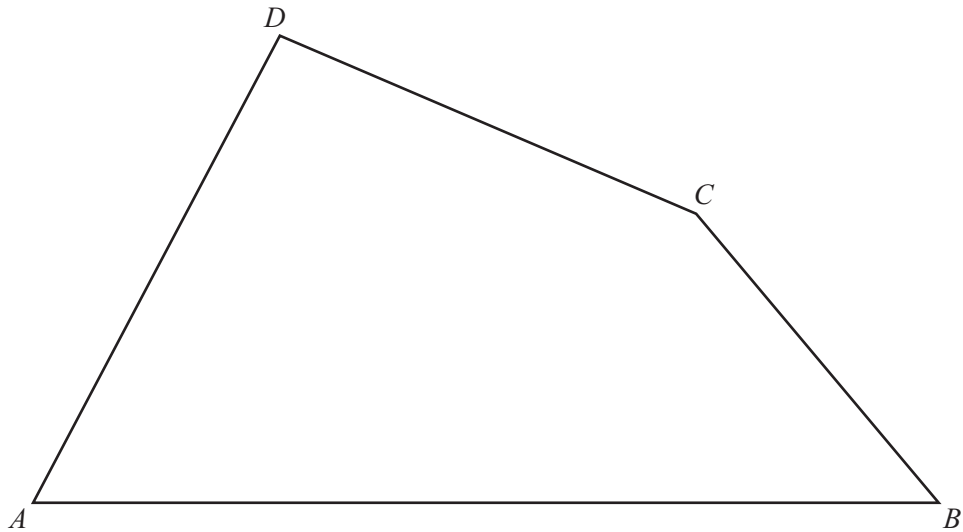
[5]

4)



- (a) On the diagram above, **using a straight edge and compasses only**, construct
- (i) the bisector of angle  $ABC$ , [2]
  - (ii) the locus of points which are equidistant from  $A$  and from  $B$ . [2]
- (b) Shade the region inside the triangle which is nearer to  $A$  than to  $B$  **and** nearer to  $AB$  than to  $BC$ . [1]

5)



- (a) Draw accurately the locus of points, inside the quadrilateral  $ABCD$ , which are 6 cm from the point  $D$ . [1]
- (b) Using a straight edge and compasses only, construct
- (i) the perpendicular bisector of  $AB$ , [2]
  - (ii) the locus of points, inside the quadrilateral, which are equidistant from  $AB$  and from  $BC$ . [2]
- (c) The point  $Q$  is equidistant from  $A$  and from  $B$  **and** equidistant from  $AB$  and from  $BC$ .
- (i) Label the point  $Q$  on the diagram. [1]
  - (ii) Measure the distance of  $Q$  from the line  $AB$ .

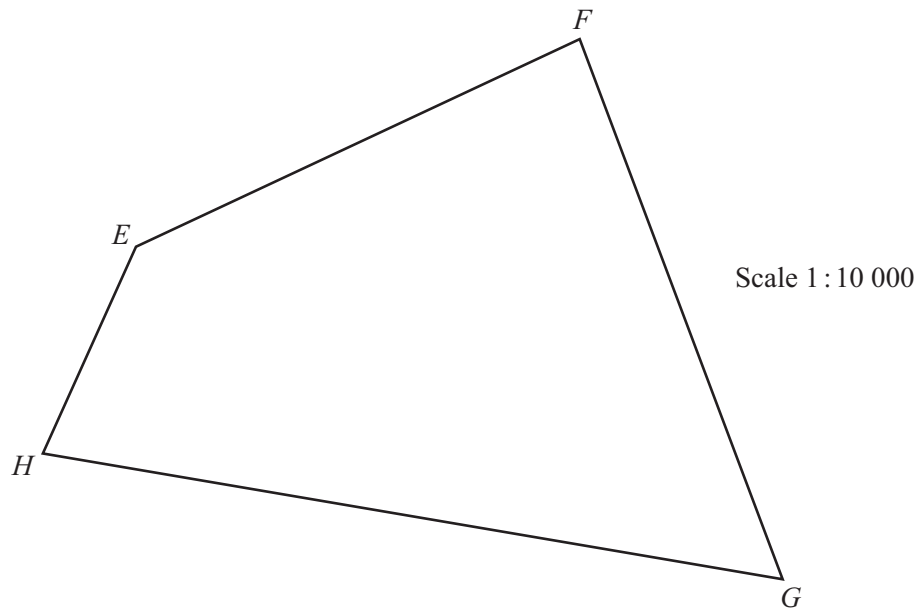
*Answer(c)(ii)*

cm [1]

- (d) On the diagram, shade the region inside the quadrilateral which is
- less than 6 cm from  $D$
  - **and**
  - nearer to  $A$  than to  $B$
  - **and**
  - nearer to  $AB$  than to  $BC$ .

[1]

6)



The diagram is a scale drawing of a park  $EFGH$ . The scale is 1 : 10 000.

A statue is to be placed in the park so that it is

- nearer to  $G$  than to  $H$
- nearer to  $HG$  than to  $FG$
- more than 550 metres from  $F$ .

Construct accurately the boundaries of the region  $R$  in which the statue can be placed.

Leave in all your construction arcs and shade the region  $R$ .

[7]

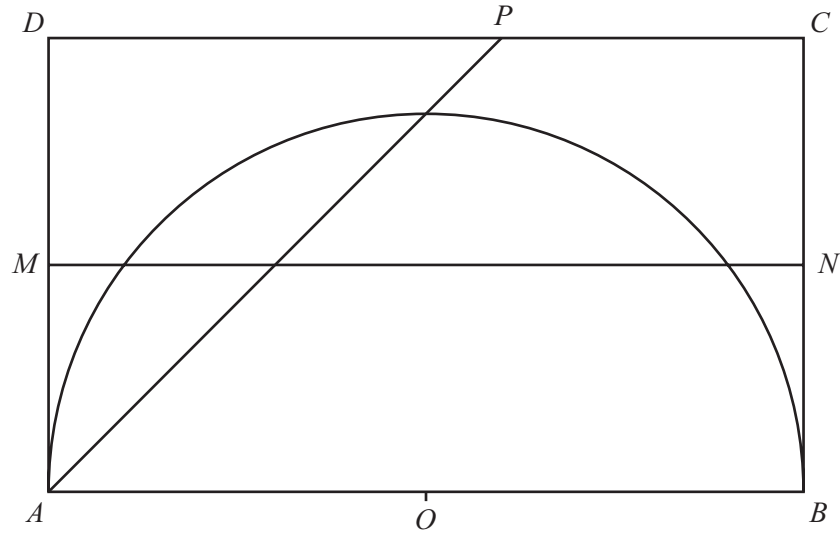
## Module 2 Loci

7)

$ABCD$  is a rectangle with  $AB = 10$  cm and  $BC = 6$  cm.  $MN$  is the perpendicular bisector of  $BC$ .

$AP$  is the bisector of angle  $BAD$ .

$O$  is the midpoint of  $AB$  and also the centre of the semicircle, radius 5 cm.

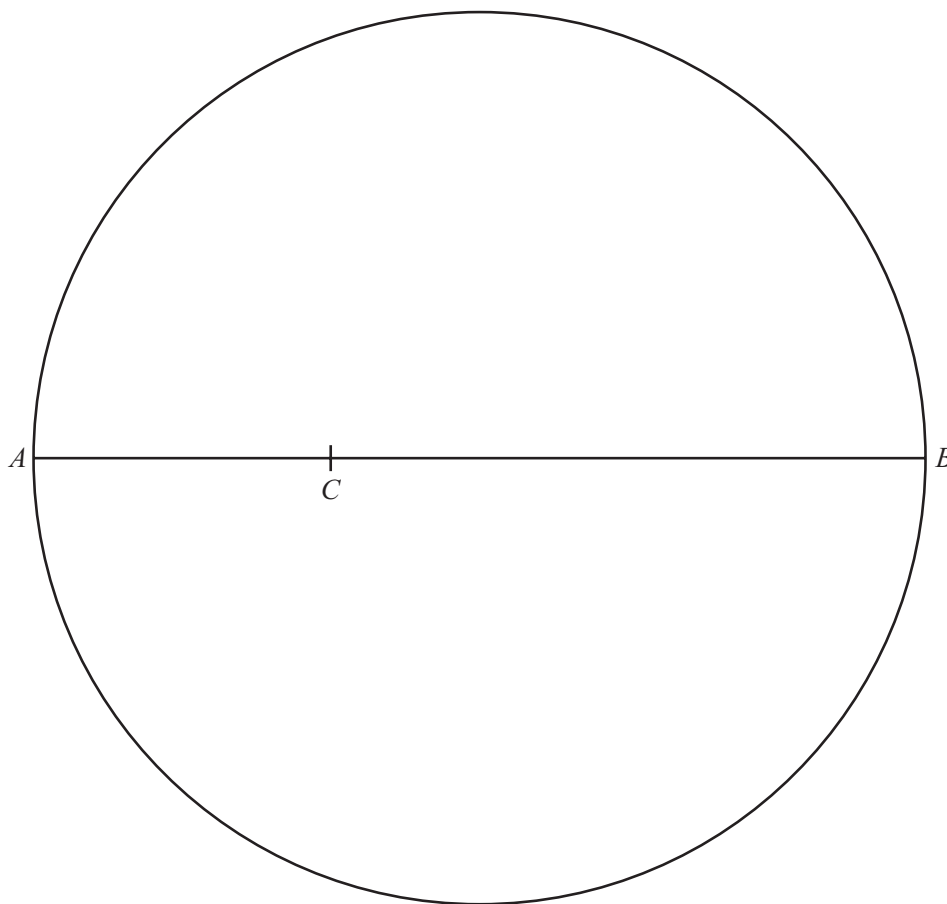


Write the letter  $R$  in the region which satisfies **all** three of the following conditions.

- nearer to  $AB$  than to  $AD$
- nearer to  $C$  than to  $B$
- less than 5 cm from  $O$

[3]

8)



$AB$  is the diameter of a circle.  
 $C$  is a point on  $AB$  such that  $AC = 4$  cm.

**(a) Using a straight edge and compasses only**, construct

**(i)** the locus of points which are equidistant from  $A$  and from  $B$ , [2]

**(ii)** the locus of points which are 4 cm from  $C$ . [1]

**(b)** Shade the region in the diagram which is

- and**
- nearer to  $B$  than to  $A$
  - less than 4 cm from  $C$ .

[1]