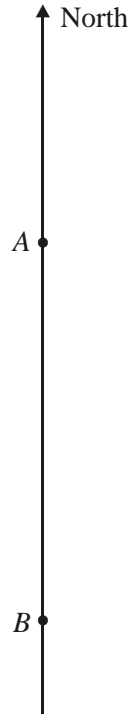


**Constructions, Loci and Bearings**

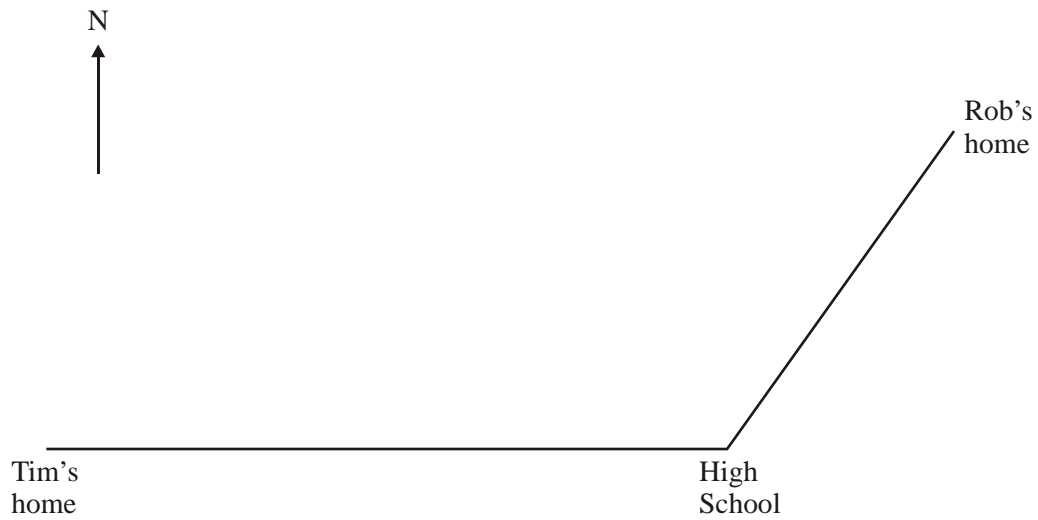
- I.**  $A$  is due North of  $B$ .  
The bearing of  $C$  from  $A$  is  $115^\circ$ .  
The bearing of  $C$  from  $B$  is  $075^\circ$ .



Mark the position of  $C$  on the diagram.

**(Total 3 marks)**

2. Tim and Rob go to the High School.  
The scale drawing shows the positions of their homes and the High School.



Tim lives 2.25 km due west of the High School.

- (a) Use the diagram to work out the scale.

Answer 1 km is represented by ..... cm (1)

- (b) What is the actual distance from Rob's home to the High School?

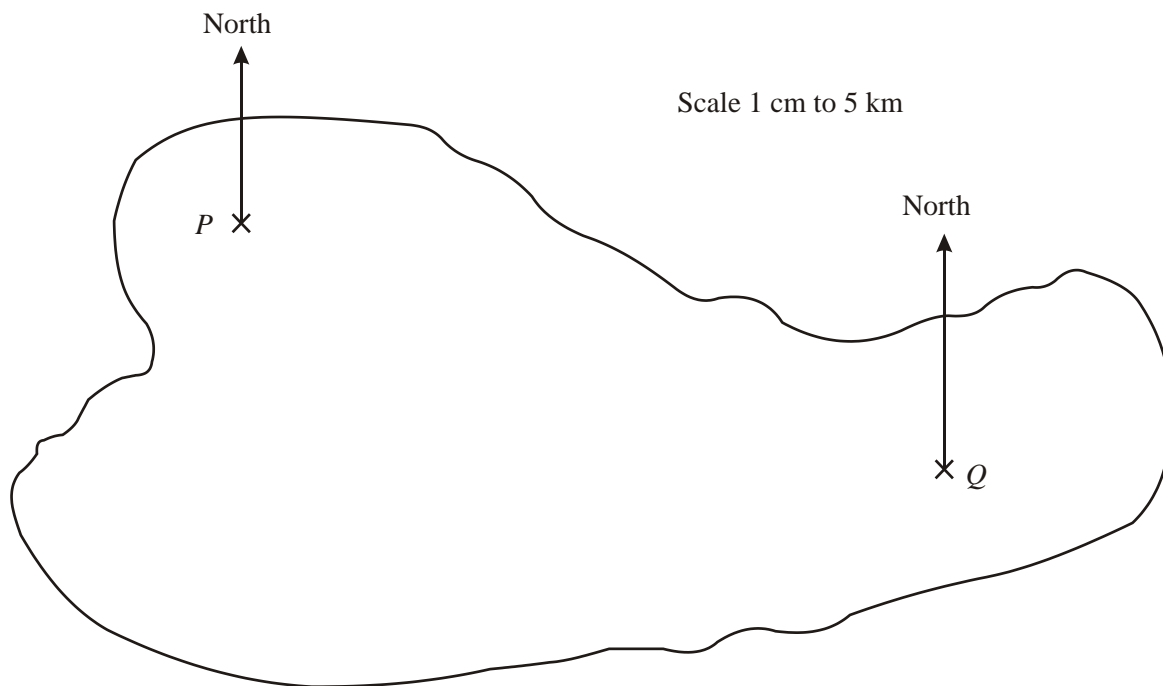
.....  
Answer ..... km (2)

- (c) What is the bearing of Rob's home from the High School?

Answer ..... (1)

**(Total 4 marks)**

3. The map of an island is shown.



*P* and *Q* are the positions of two houses on the island.

(a) What is the bearing of *P* from *Q*?

.....

Answer .....°

(1)

(b) Calculate the actual distance from *P* to *Q* in kilometres.

.....

.....

Answer .....km

(2)

(c) A house is 20 km from *P* on a bearing of 130°. Mark the position of the house on the diagram with a **X**.

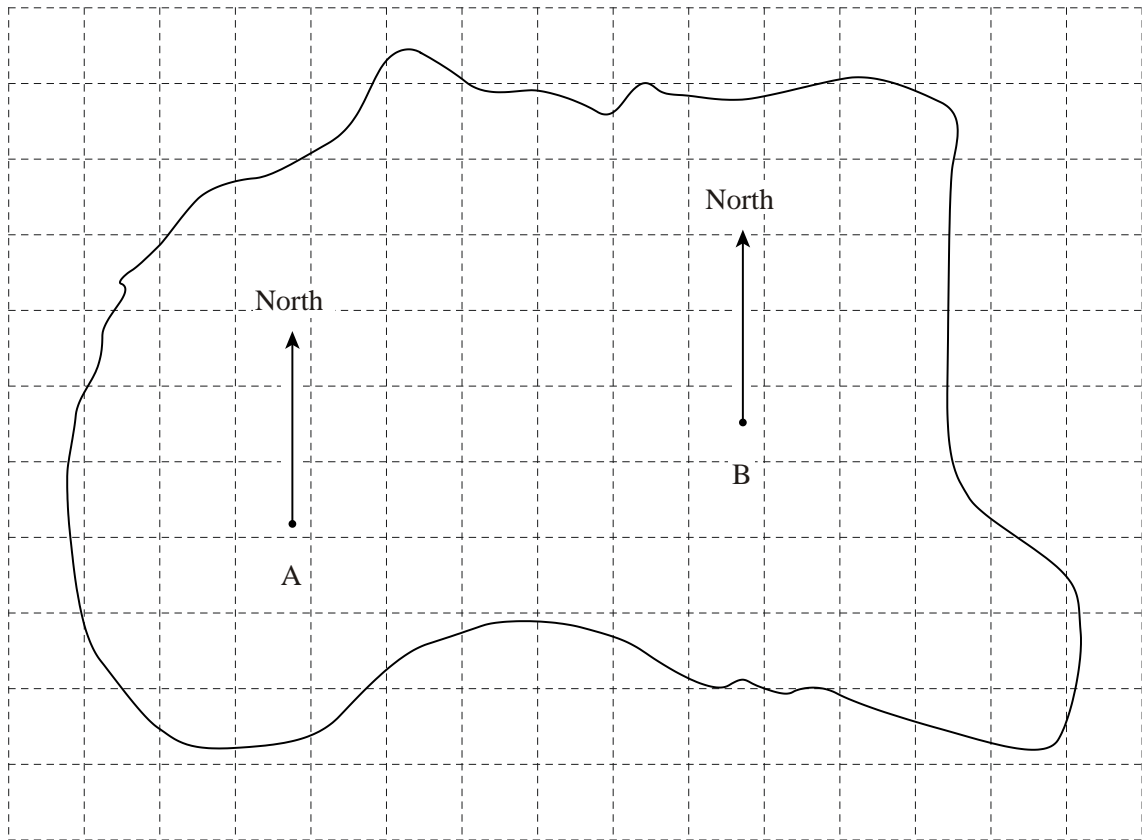
.....

(2)

(Total 5 marks)

4. The diagram shows an island with North lines drawn at points A and B.

Scale: 1 cm to 5 km



- (a) Treasure is buried on a bearing of  $037^\circ$  from A and  $290^\circ$  from B.  
Mark, with a  $\times$ , the position of the treasure.

(3)

- (b) Find the real distance between the points A and B.

.....

Answer ..... km

(3)

(Total 6 marks)

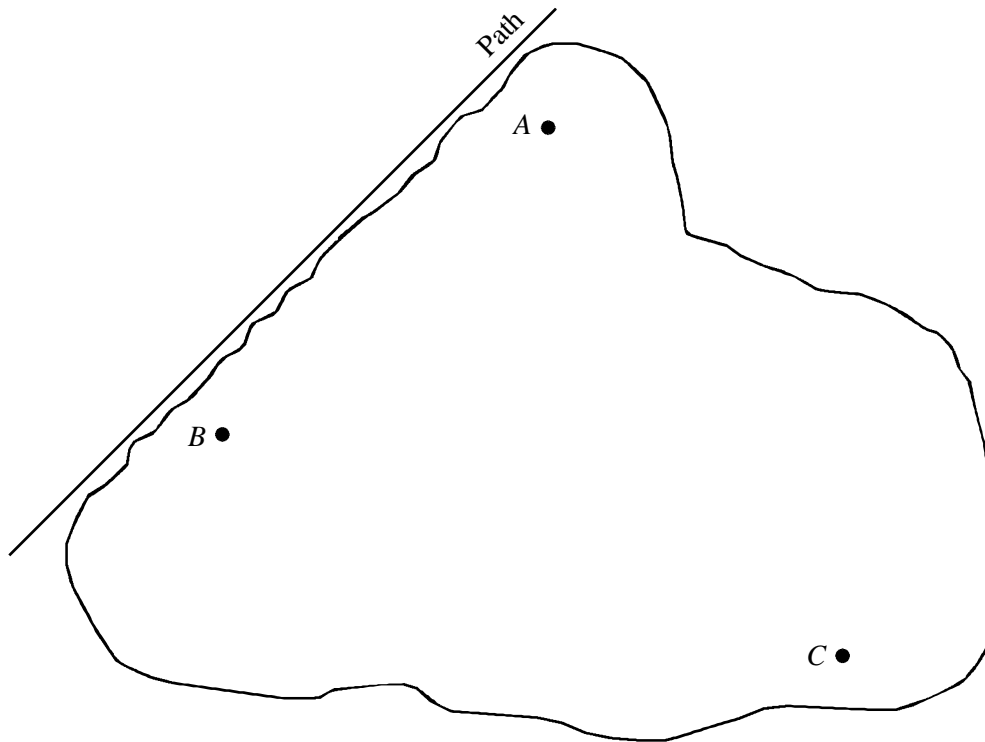
5. The map below shows three boats, *A*, *B* and *C*, on a lake. Along one edge of the lake there is a straight path.

Treasure lies at the bottom of the lake.

The treasure is:

- between 150 m and 250 m from *B*,
- nearer to *A* than *C*,
- more than 100 m from the path.

Scale: 1 cm represents 50m



Using a ruler and compasses only, shade the region in which the treasure lies.

You **must** show clearly all your construction arcs.

(Total 5 marks)

6. (a) Using a ruler and compasses only, construct an angle of  $60^\circ$ .  
Show all your construction lines and arcs.

(2)

- (b) Two lifeboat stations *A* and *B* receive a distress call from a boat.  
The boat is within 6 kilometres of station *A*.  
The boat is within 8 kilometres of station *B*.  
Shade the possible area in which the boat could be.

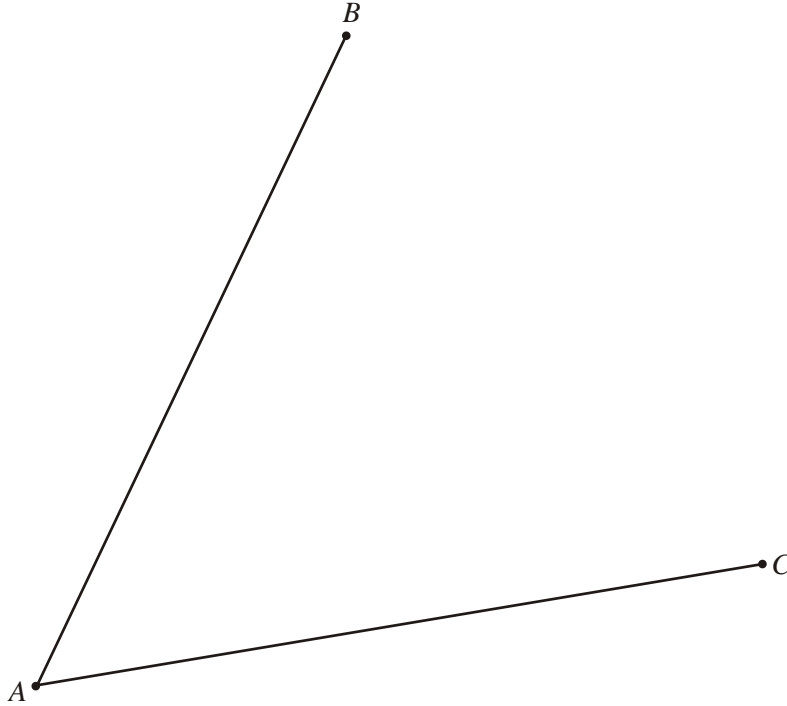


(2)

(Total 4 marks)

7.  $AB$  and  $AC$  represent two walls.  
A mast is to be erected that is  
equidistant from  $AB$  and  $AC$   
between 40 m and 70 m from  $A$ .

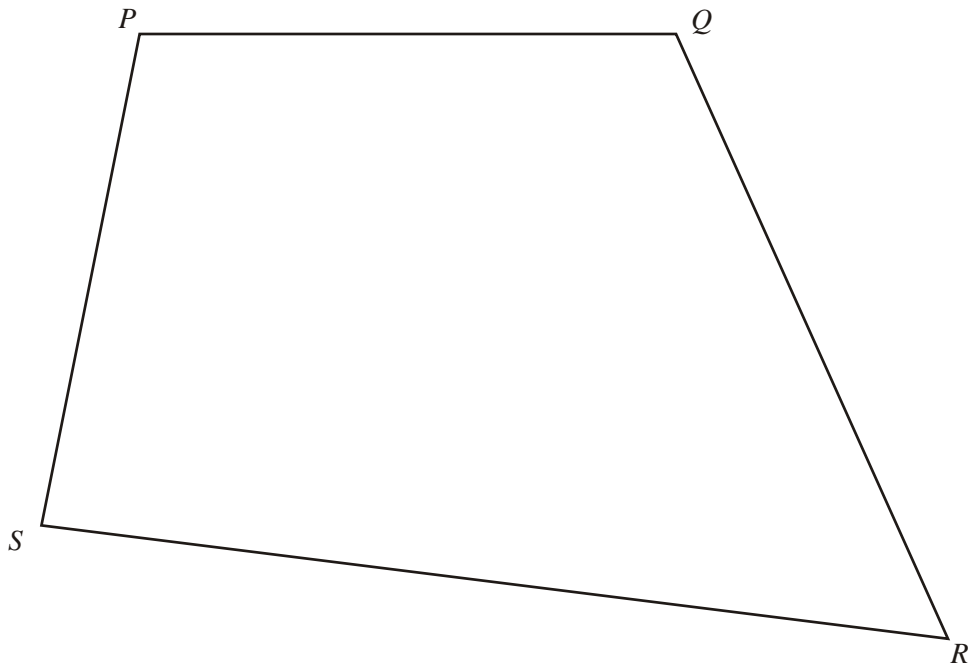
Scale: 1 cm represents 10 m



Show clearly all the possible positions of the mast.

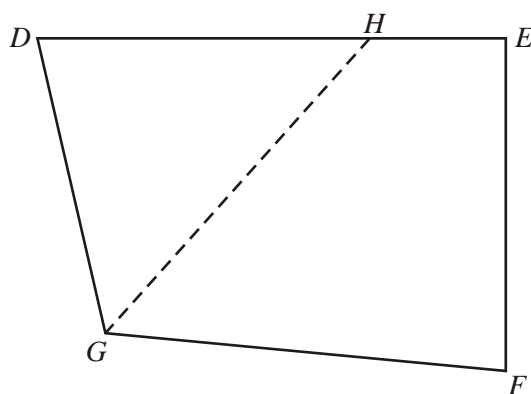
(Total 3 marks)

8. The diagram shows a quadrilateral  $PQRS$ .



- (a) Draw the locus of points that are the same distance from  $P$  as from  $Q$ . (2)
- (b) Shade the region inside the quadrilateral which is less than 7 cm from  $S$  and nearer to  $Q$  than to  $P$ . (2)
- (Total 4 marks)

9. The quadrilateral  $DEFG$  is a scale drawing of a field.  
The line  $GH$  bisects angle  $DGF$ .

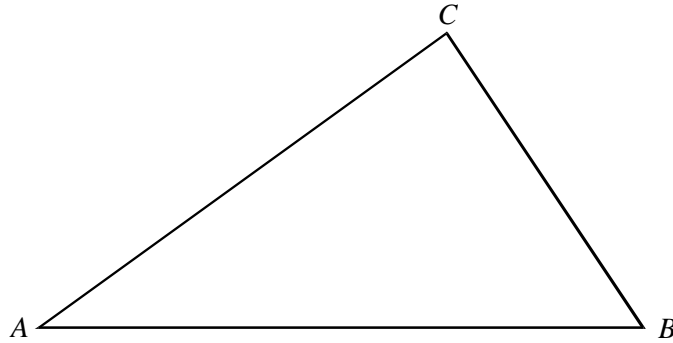


Scale:  
1 cm represents 10 m

- (a) Construct the locus of points in the field which are 40 m from  $E$ . (1)
- (b) Shade the area of the field which is more than 40 m from  $E$  **and** nearer to  $DG$  than to  $GF$ . (1)
- (Total 2 marks)



10. The diagram shows a triangle,  $ABC$ .



- (a) Using a ruler and compasses only, construct the perpendicular bisector of  $AB$ .  
You **must** show clearly all your construction arcs. (2)
- (b) (i) Repeat this construction on another side of the triangle. (1)
- (ii) The point of intersection of the two bisectors is the centre of the circle which passes through  $A$ ,  $B$  and  $C$ .  
Draw this circle. (2)

(Total 5 marks)

11. The diagram shows three towns  $A$ ,  $B$  and  $C$ .  
1 cm represents 2 km.

Show on the diagram the region which is less than 10 km from all three towns.

Scale: 1 cm represents 2 km



(Total 3 marks)