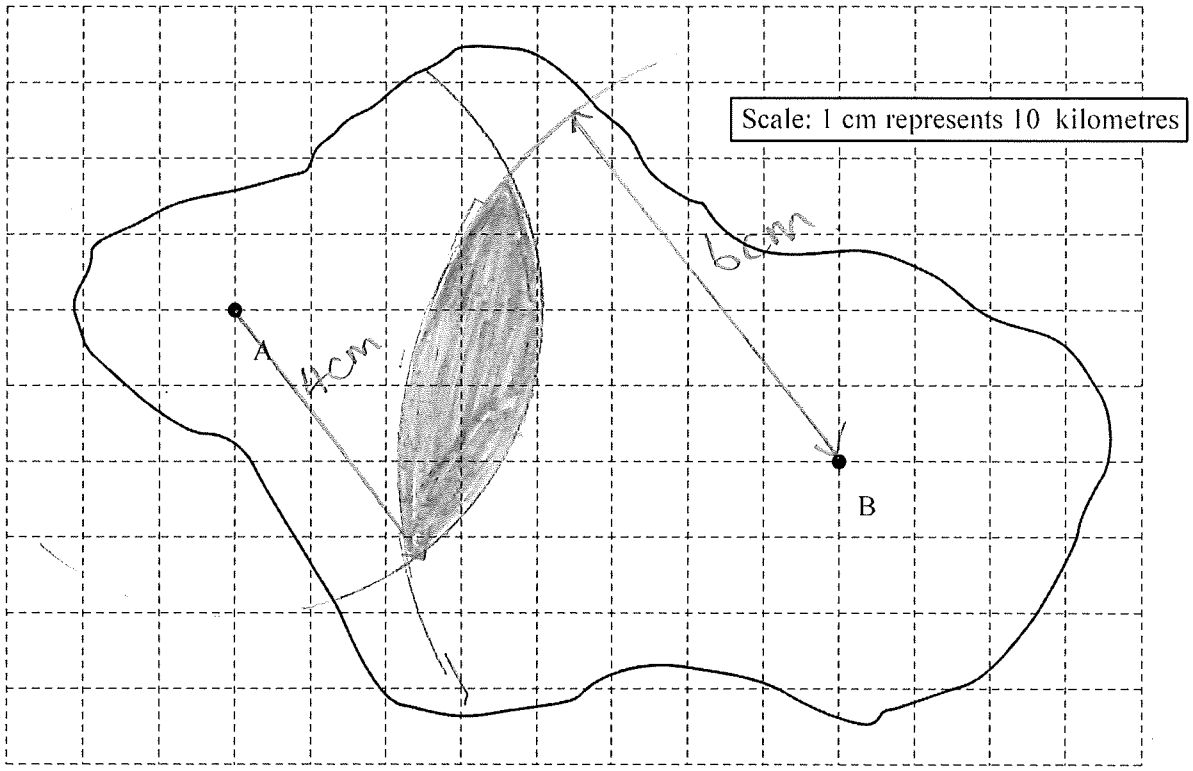
Loci and Constructions GCSE Questions

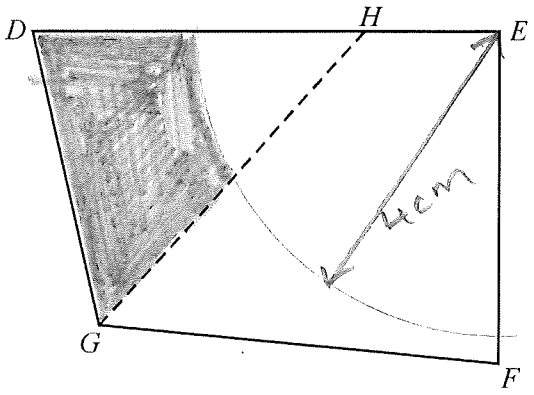
1. There are two TV transmitters on an island.
The transmitter at A has a range of 40 km.
The transmitter at B has a range of 60 km.



Show clearly the area in which the signal from both transmitters can be received.

(Total 3 marks)

2. 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*.

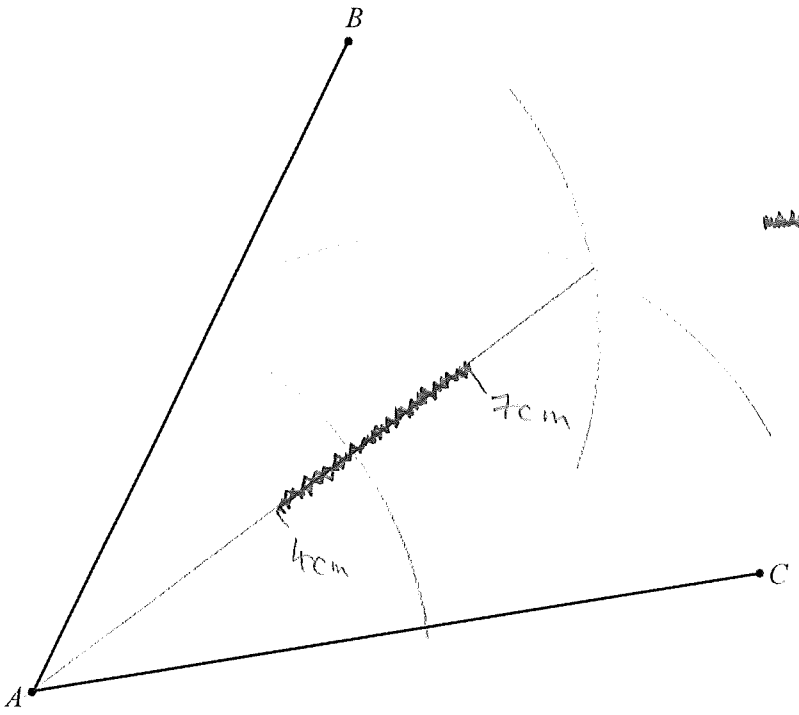
(1)
(Total 2 marks)

3. 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



marks the solution

Show clearly all the possible positions of the mast.

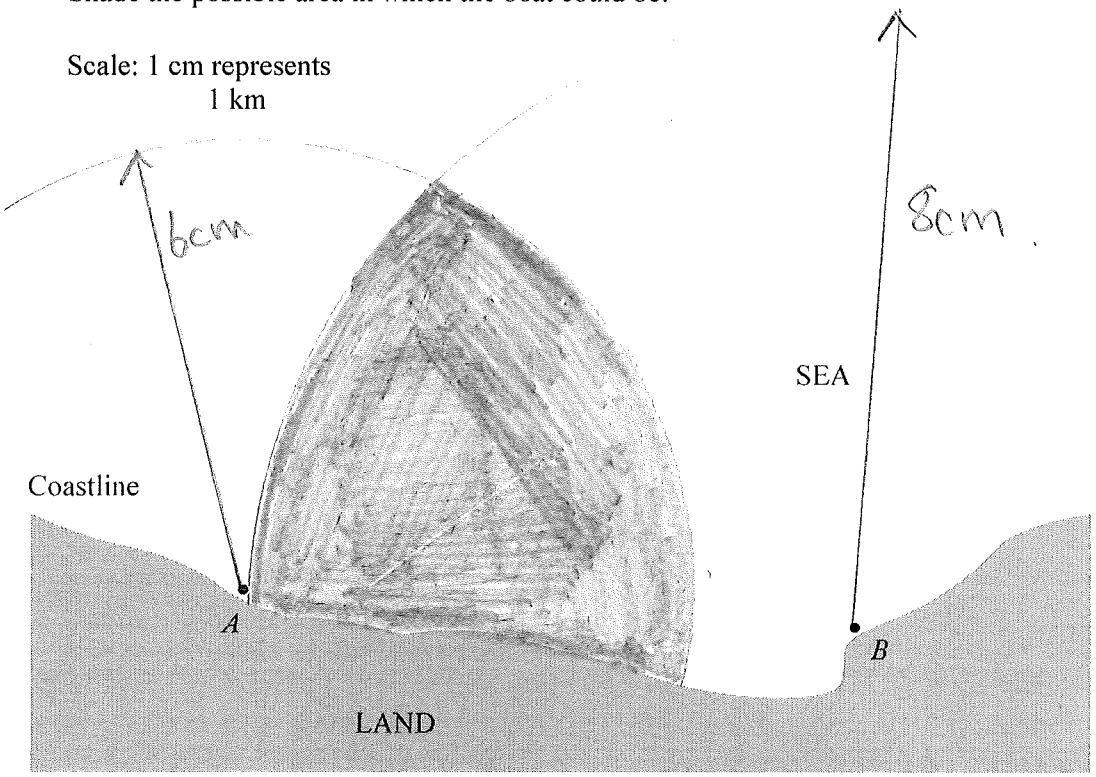
(Total 3 marks)

4.

(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*.

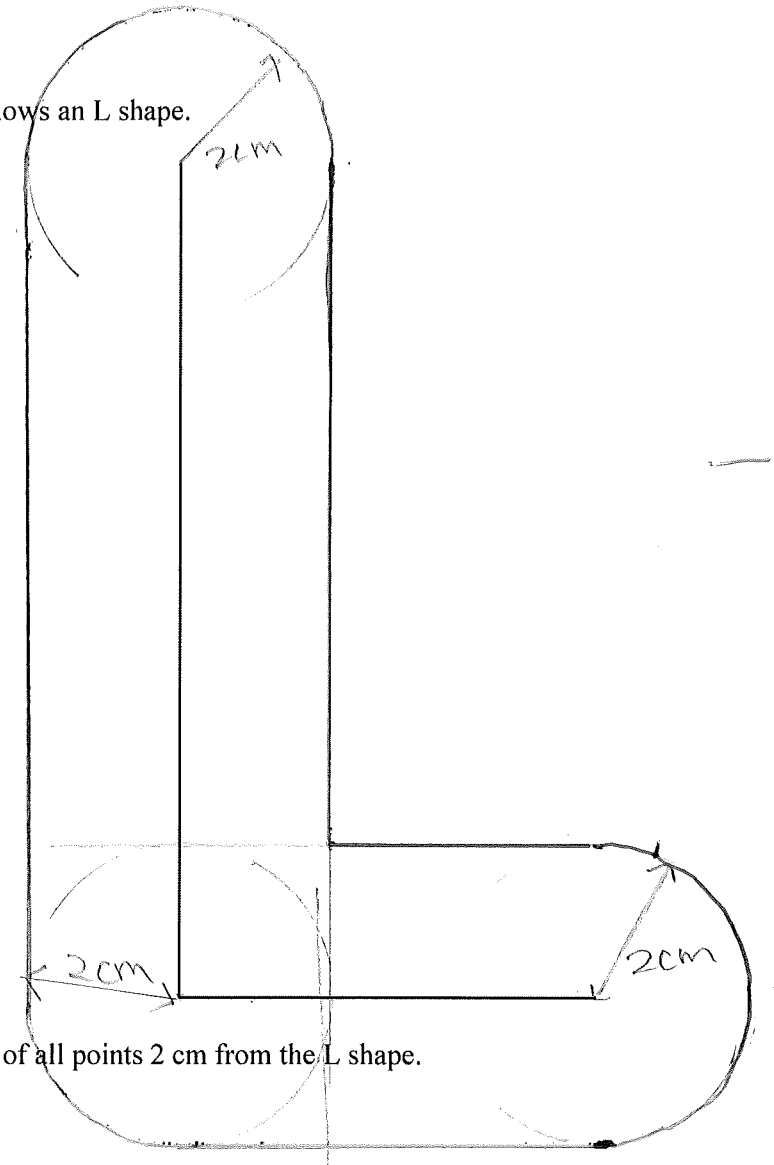
Shade the possible area in which the boat could be.

Scale: 1 cm represents 1 km



(Total 2 marks)

5. The diagram shows an L shape.



Draw the locus of all points 2 cm from the L shape.

(Total 3 marks)

— = solution

this point will be slightly over 2cm

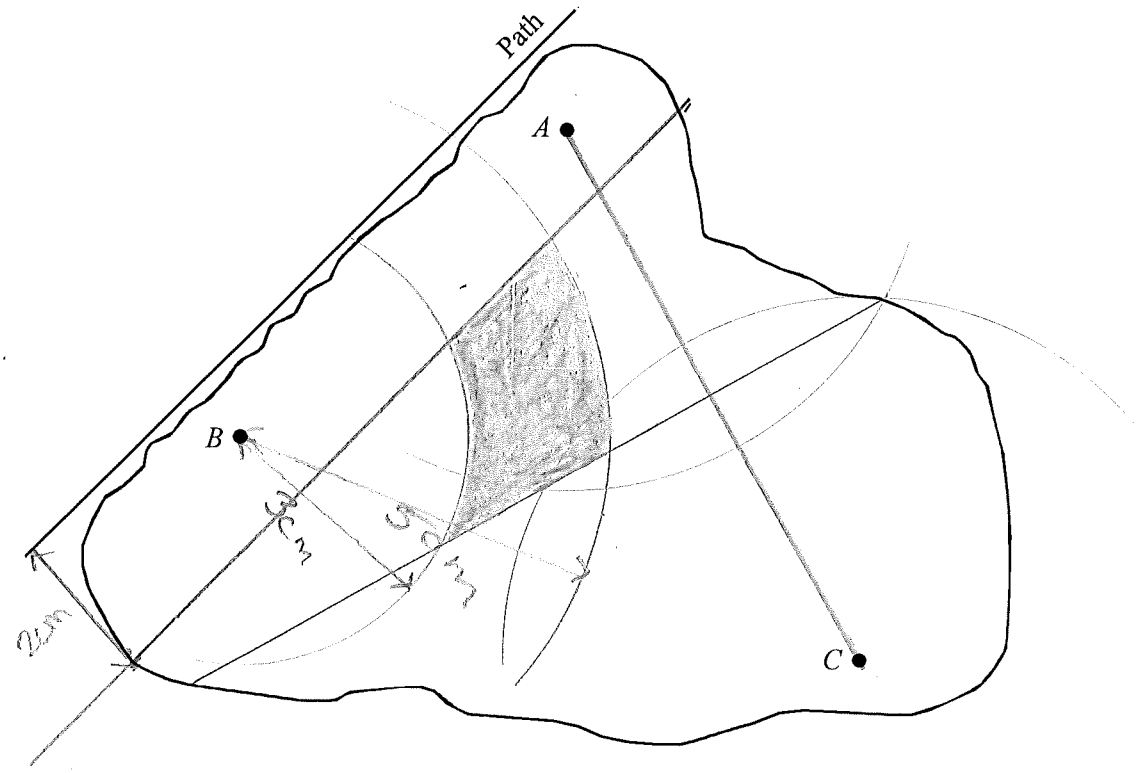
6. The map below shows three boats, A, B and C, on a lake.
Along one edge of the lake there is a straight path.

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.

perp. bisector

Scale: 1 cm represents 50m



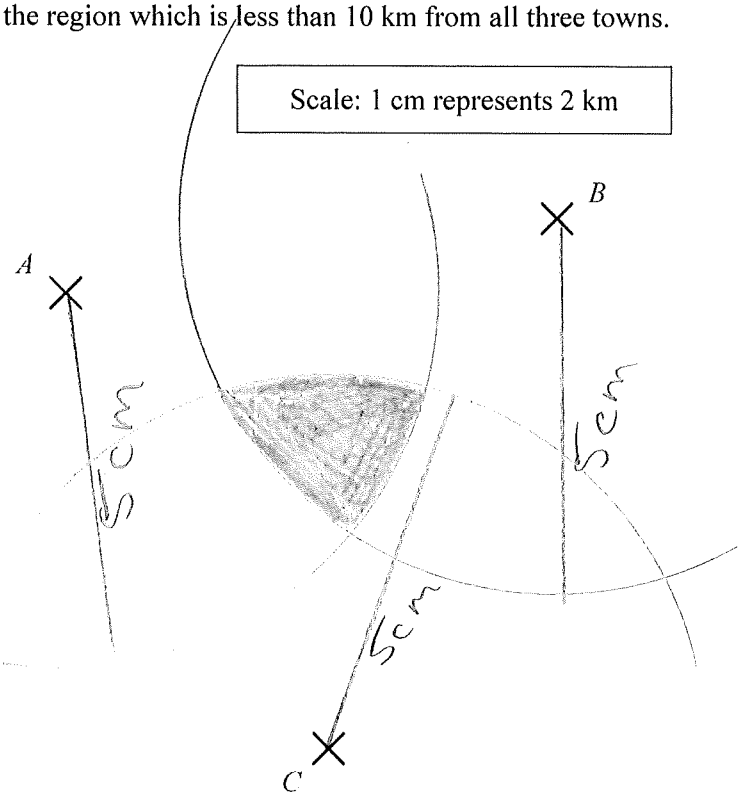
Using a ruler and compasses only, shade the region in which the treasure lies.

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

(Total 5 marks)

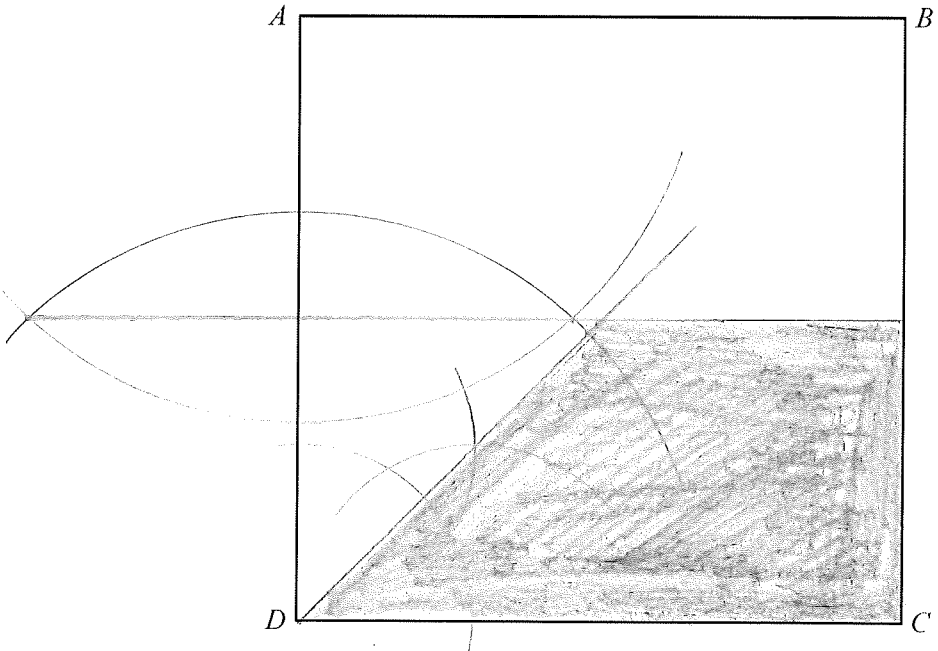
7. The diagram shows three towns *A, B* and *C*.
1 cm represents 2 km.

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



(Total 3 marks)

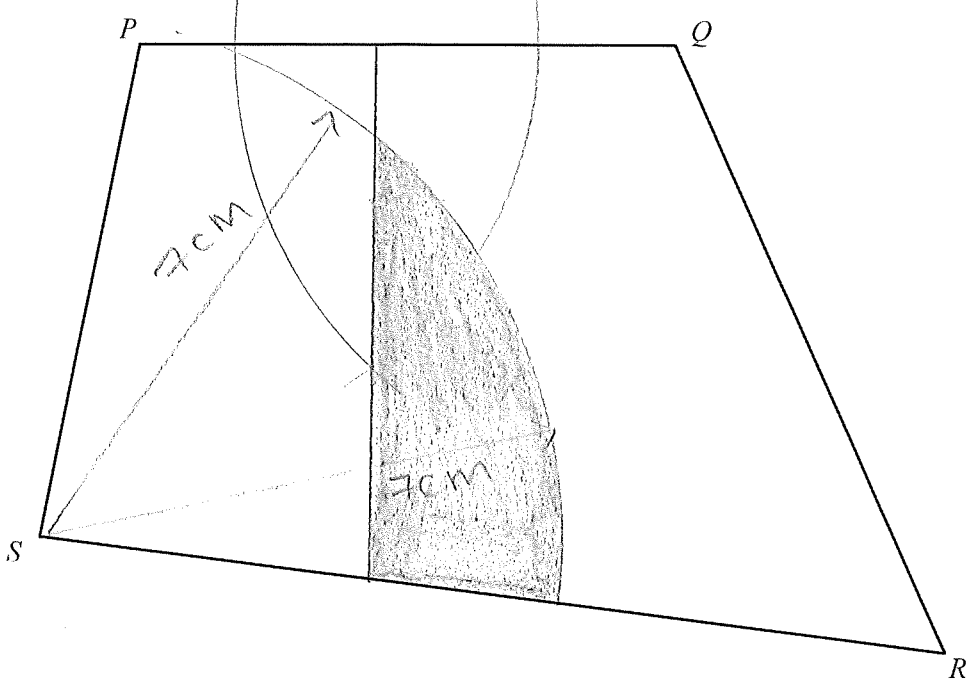
8. *ABCD* is a square of side 8 cm.



Show clearly the region inside the square that is both closer to the point *D* than to the point *A*, and closer to the side *CD* than the side *AD*.

(Total 3 marks)

9. 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)