

Y8 Maths

Unit 7 Test

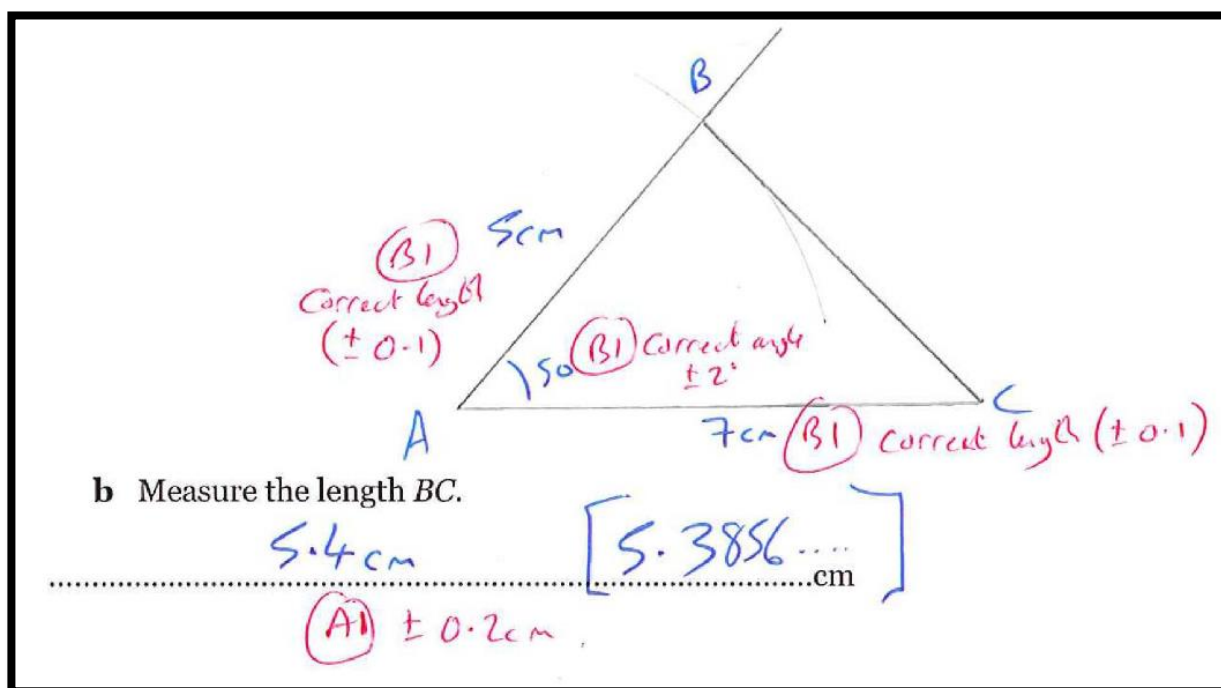
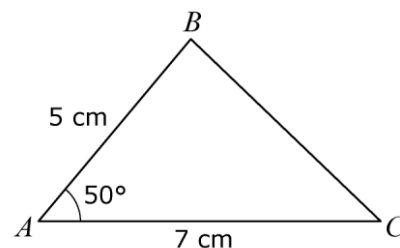
Constructions and Loci

Name: _____

NON-CALCULATOR

Remember: for ALL questions, do NOT rub out your construction lines.

- 1. a** Using a **ruler**, **compasses** and **protractor**, construct an accurate drawing of triangle ABC, shown below.



- b** Measure the length BC.

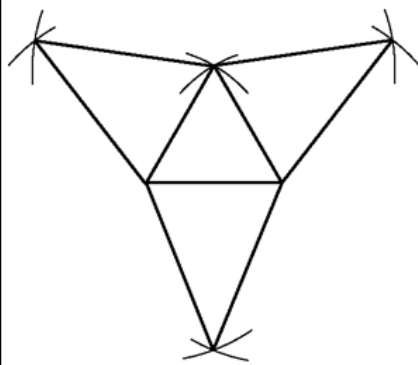
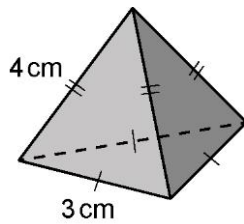
[3]

- b** Measure the length BC, to 1 d.p.

.....cm
[1]

(Total 4 marks)

2. Construct the net of this triangular pyramid using a **ruler** and **compasses**. It has an equilateral triangle base of side 3 cm and isosceles triangle faces of 4 cm, 4 cm and 3 cm.



B1 – line of 3 cm;

B1 – construction arcs 3 cm from base vertices;

B1 – accurately drawn triangle;

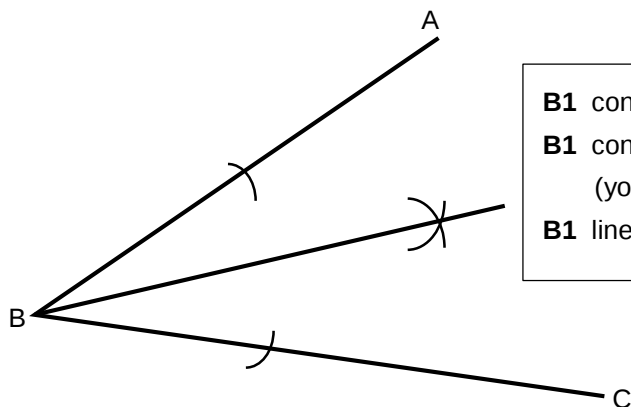
B1 – construction arcs of 4 cm from one side of the equilateral triangle;

B1 – one correctly drawn isosceles triangle;

B1 – other two triangles accurately drawn

(Total 6 marks)

3. Construct the angle bisector of $\hat{ABC}$, using **ruler** and **compasses**.

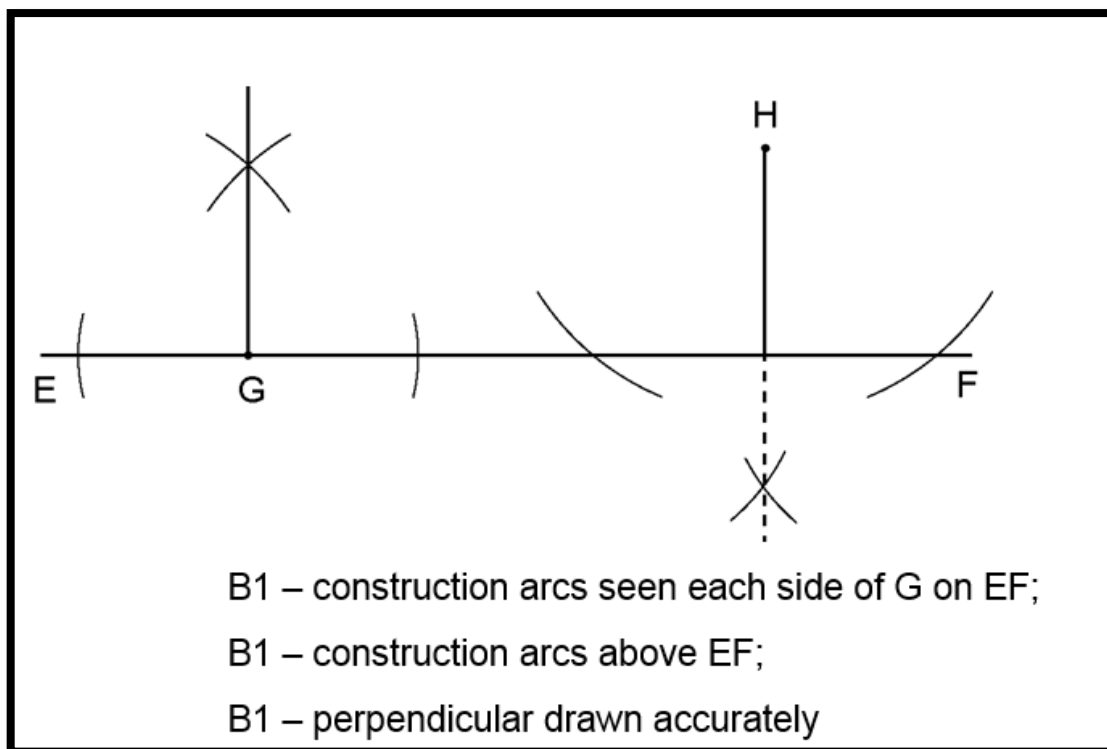


- B1** construction arcs on AB and BC
- B1** construction arcs in the middle of the diagram (you know what I mean!?)
- B1** line joining B and crossing point of their arcs

(Total 3 marks)

4. Using the line EF, construct the perpendicular **from** G, using **ruler** and **compasses**.

On MS, ignore the extra diagram for point H



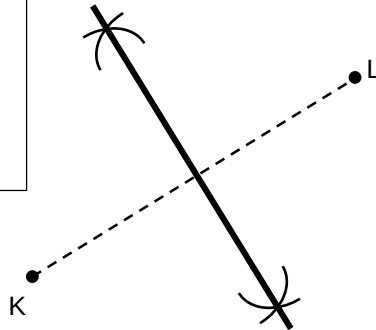
(Total 3 marks)

5. Katie and Larry are standing in a field, at points K and L. Draw the locus of all points which are equidistant from both Katie and Larry. Use **ruler** and **compasses**.

B1 one set of construction arcs

B1 both sets of construction arcs

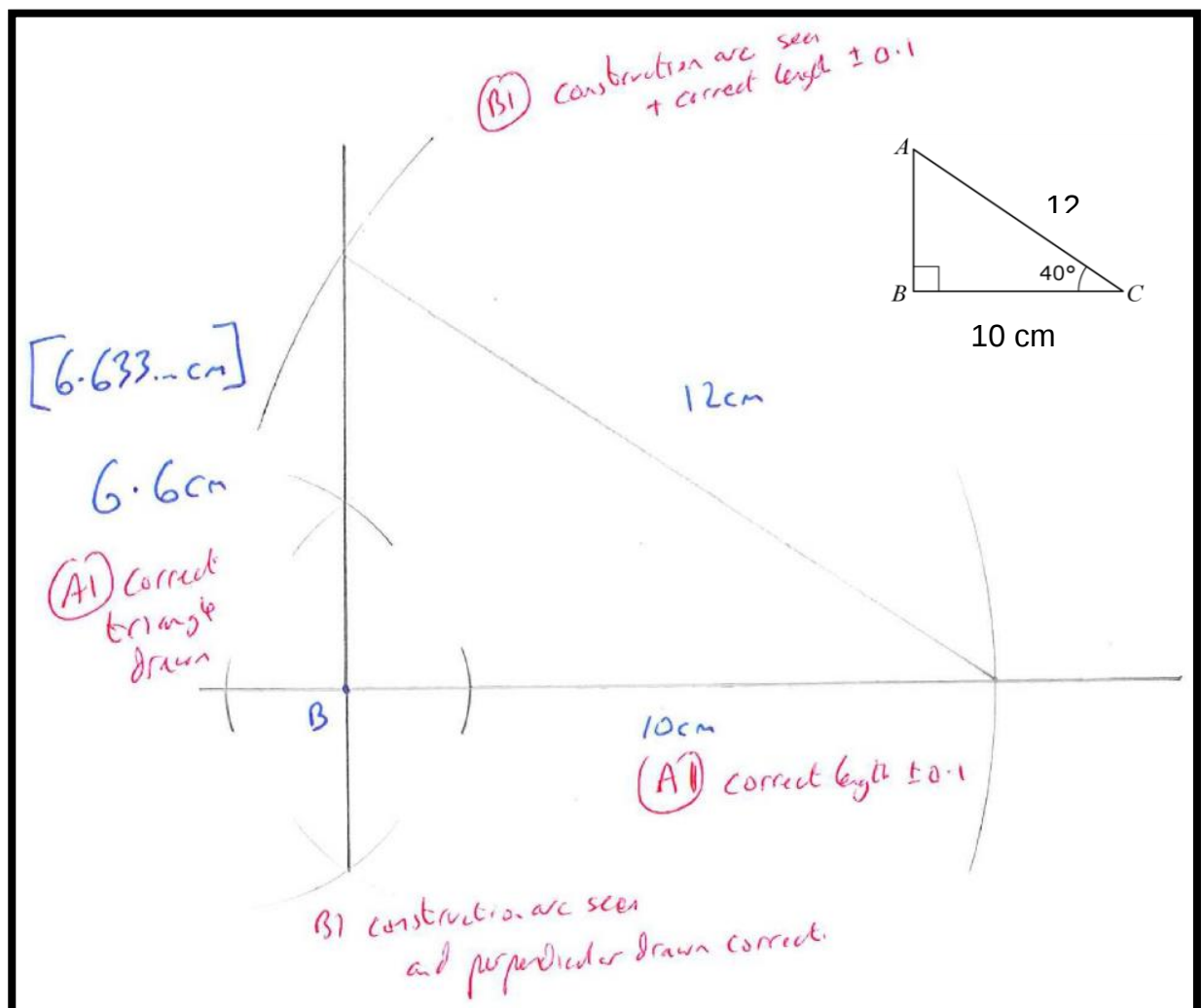
B1 correct line joining the correct 2 sets of crossing arcs



(Total 3 marks)

6. Use **ruler** and **compasses** to construct the triangle ABC.

Note: you have to construct the right angle using ruler and compasses, not a protractor.



(Total 4 marks)

7. Scrat is stuck in space. However, he has a radio transmitter on his spacesuit which can transmit strong signals up to a distance of 80km from the transmitter.

What shape is the region with a strong signal?

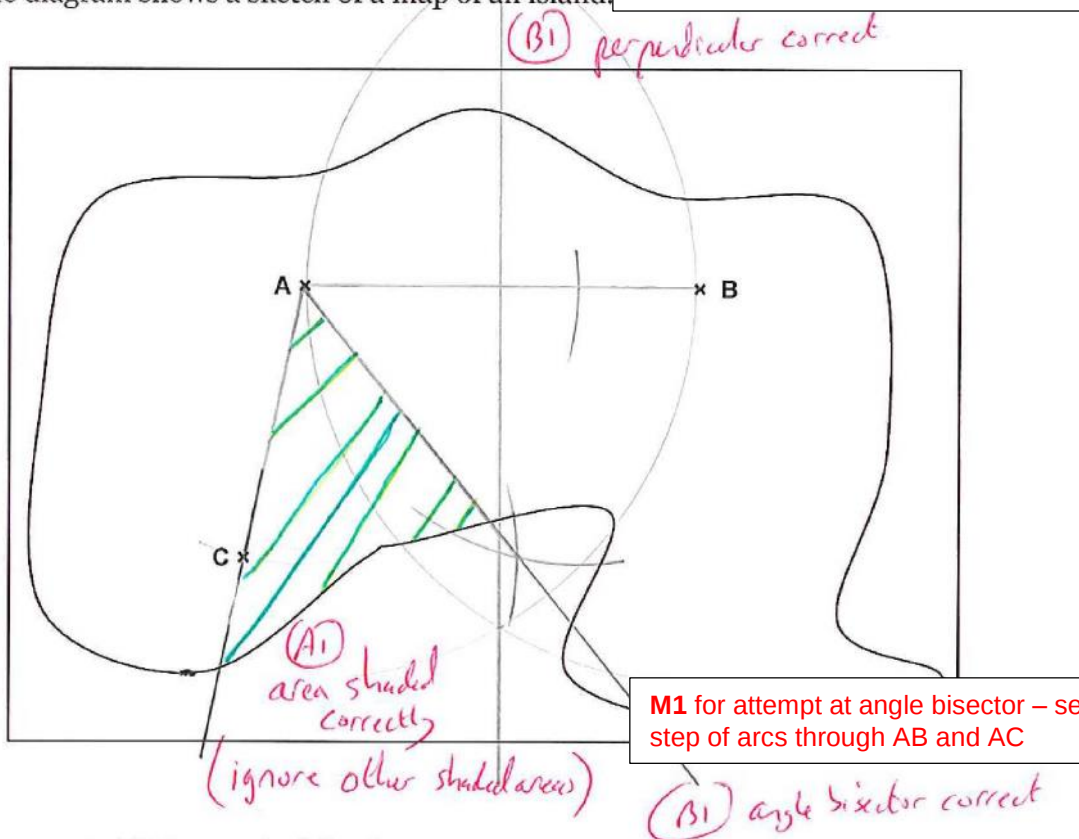


A SPHERE (not circle)

(Total 1 mark)

8. The diagram shows a sketch of a map of an island.

M1 for attempt at perpendicular bisector – seeing 2 intersecting arcs in roughly the right place



M1 for attempt at angle bisector – seeing the 1st step of arcs through AB and AC

Treasure is hidden on the island.

The treasure is hidden

- (i) nearer to A than to B,
- and (ii) nearer to the line AC than to the line AB.

On the map shade the region in which the treasure is hidden.

(Total 5 marks)

- (Total 12 marks)**

If you've finished, and checked your work, try this challenge.

YOU WILL **NOT** BE MARKED ON THIS SECTION

Investigation

A field is 20 m square.

Four goats are tethered to the four corners of the field.

The ropes are all the same length, and the goats must not be able to reach each other.

- 1 Draw a plan of the field using a scale of 1 cm to 2 m.
- 2 a Draw the maximum area that the goats can graze.
- b Work out this area.

Now the goats are tethered to the midpoint of each side of the field.

Again, all the ropes are the same length and the goats cannot reach each other.

- 3 a Draw the maximum area that the goats can graze now.
 - b Work out this area.
- 4 Which area is larger?

Problem-solving

