Chhetri Academy

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GCSE MATHS

Geometry and measures

Edexcel 1MA1 | Subtopic collection Topic 51

Constructions and loci

Foundation tier

Past paper question booklet

30	2011-2025	Foundation
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

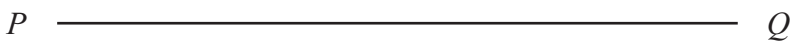
Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

5 Draw accurately a circle of radius 5 cm.
Use the cross (×) as the centre of your circle.

×

(Total for Question 5 is 2 marks)

6 (i) Measure the length of PQ.



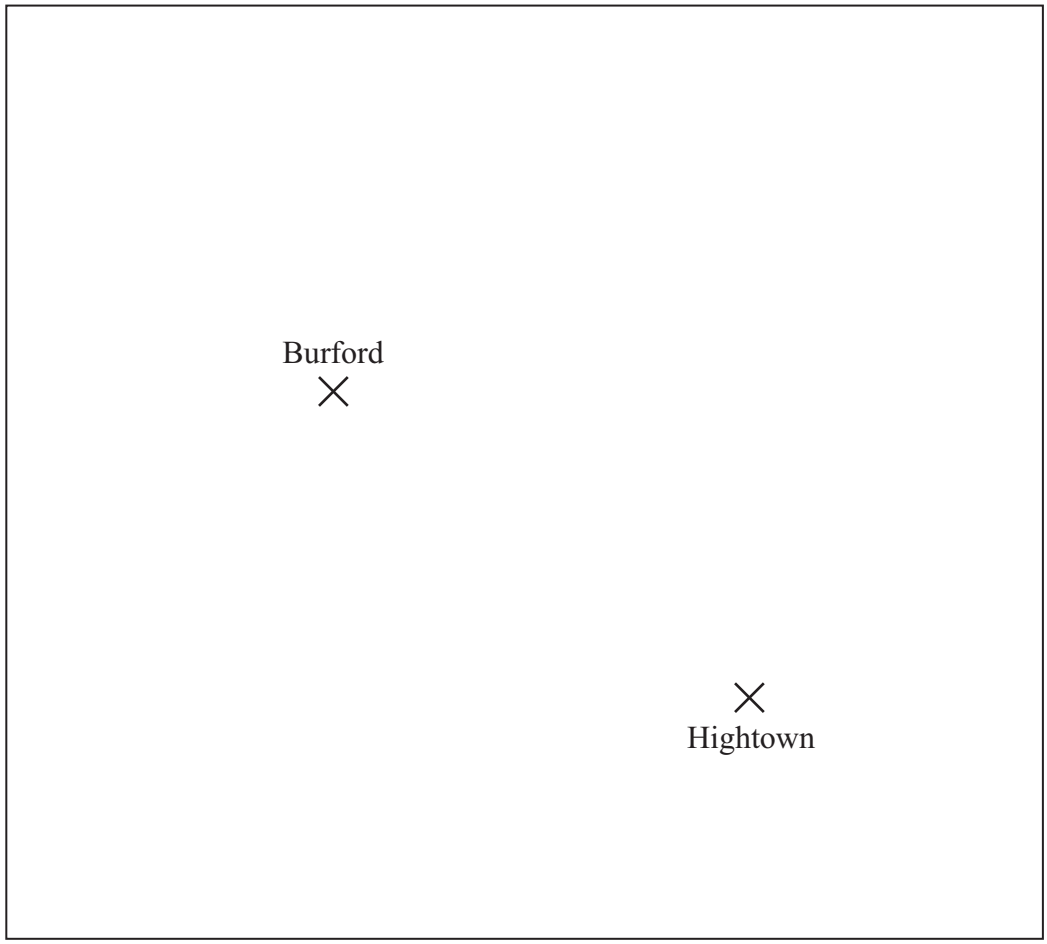
PQ = ... cm

(ii) Mark with a cross (×) the midpoint of the line PQ.

(iii) Draw a line perpendicular to the line PQ.

(Total for Question 6 is 3 marks)

28 Here is a map.
The map shows two towns, Burford and Hightown.



Scale: 1 cm represents 10 km

A company is going to build a warehouse.

The warehouse will be less than 30 km from Burford **and** less than 50 km from Hightown.

Shade the region on the map where the company can build the warehouse.

(Total for Question 28 is 3 marks)

16 In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 8 cm.

You must show all your construction lines.
One side of the triangle has already been drawn for you.

(Total for Question 16 is 2 marks)

21 Here is a scale drawing of a rectangular garden $ABCD$.



Scale: 1 cm represents 1 metre.

Jane wants to plant a tree in the garden

at least 5 m from point C,
nearer to AB than to AD
and less than 3 m from DC.

On the diagram, shade the region where Jane can plant the tree.

(Total for Question 21 is 4 marks)

14

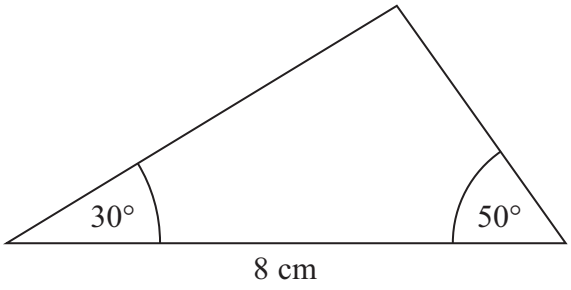


Diagram **NOT** accurately drawn

In the space below, make an accurate drawing of the triangle.

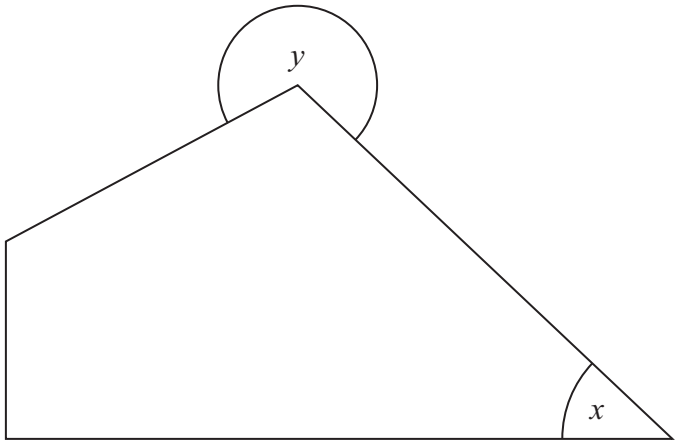
(Total for Question 14 is 3 marks)

9 Draw a circle of radius 5 cm.
Use the cross (×) as the centre of your circle.

×

(Total for Question 9 is 1 mark)

3



(a) (i) On this diagram mark, with a letter R, a right angle.

(ii) What type of angle is angle x?

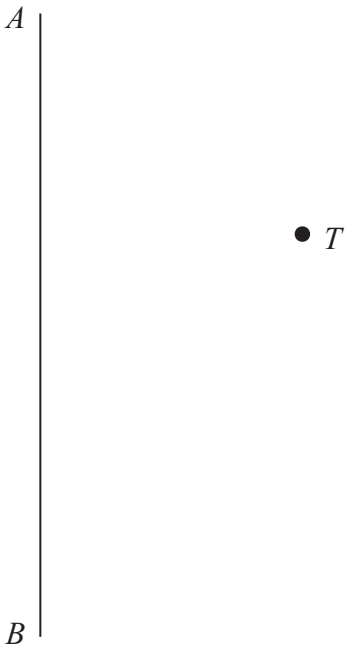
.....

(iii) What type of angle is angle y?

.....

(3)

(b) AB is a straight line.



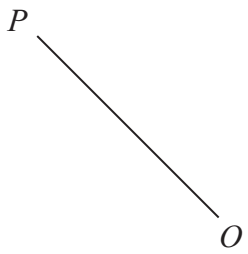
Draw a line from the point T perpendicular to the line AB.

(1)

(Total for Question 3 is 4 marks)

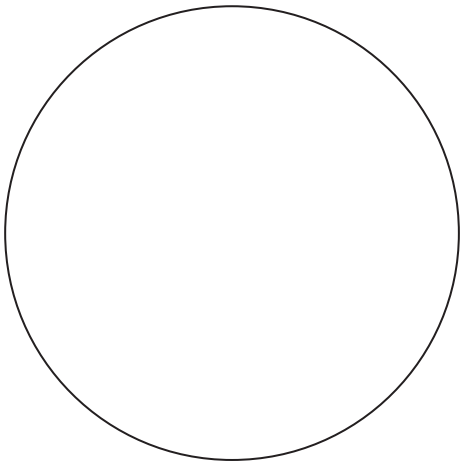
6 The line OP is a radius of a circle, centre O.

(a) Draw accurately the circle.



(1)

(b) On the circle below, draw a chord.



(1)

(Total for Question 6 is 2 marks)

13 Here is a triangle.

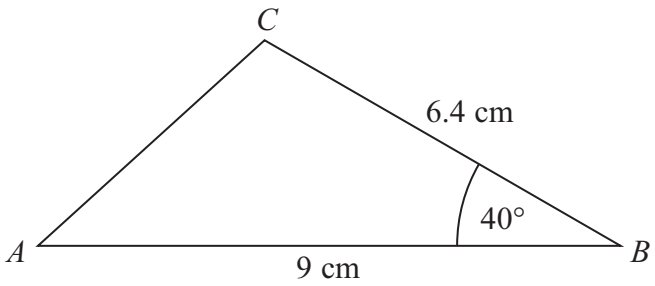
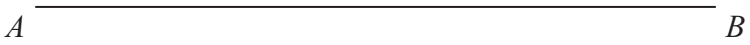


Diagram **NOT** accurately drawn

Make an accurate drawing of triangle *ABC*.
The line *AB* has already been drawn for you.



(Total for Question 13 is 2 marks)

21 Make an accurate drawing of an equilateral triangle of side length 5 cm.

(Total for Question 21 is 2 marks)

20 Here is a pyramid with a square base.
The sloping faces are identical isosceles triangles.

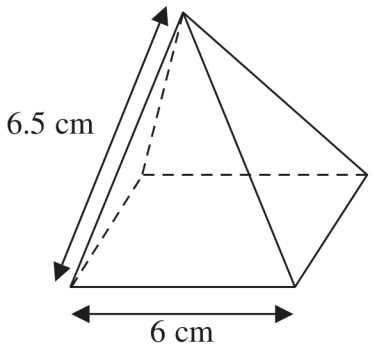
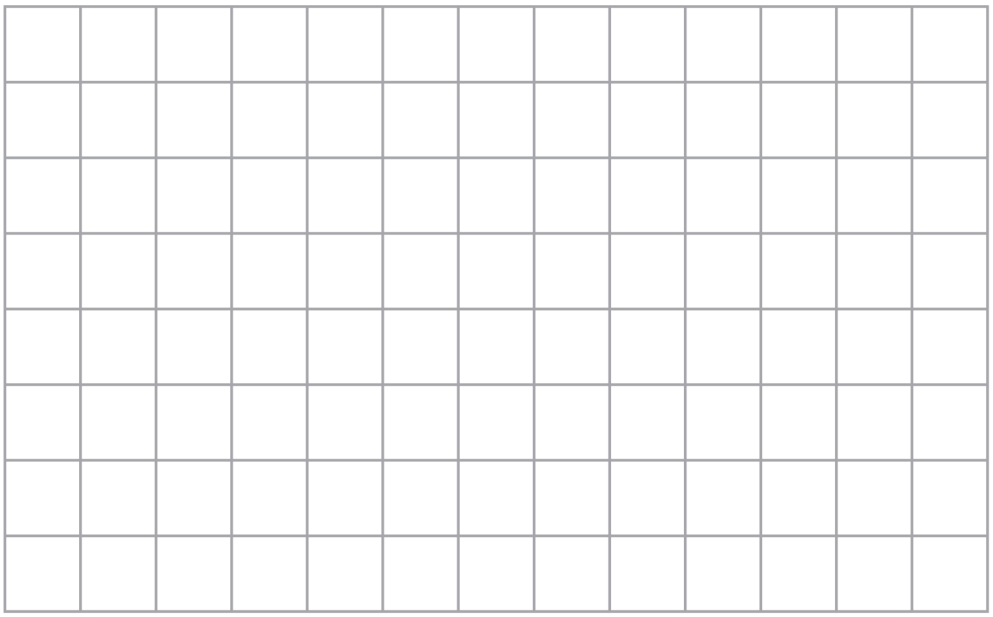


Diagram **NOT** accurately drawn

(a) Draw a full size accurate plan of the pyramid on the centimetre square grid.



(2)

(b) Using a ruler and compasses, construct an accurate drawing of one of the triangular sloping faces of the pyramid.

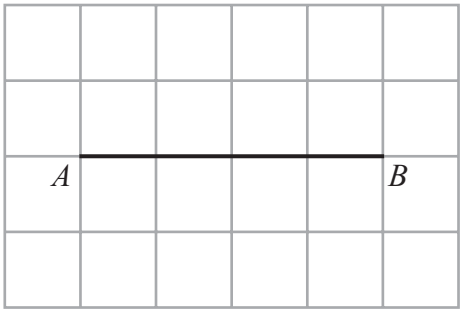
(3)

(Total for Question 20 is 5 marks)

10 In the space below, use a ruler and compasses to construct an equilateral triangle with sides of length 5 cm.
You must show all your construction lines.
One side of the triangle has been drawn for you.

(Total for Question 10 is 2 marks)

4 (a) On the grid below, draw a line that is perpendicular to the line AB.



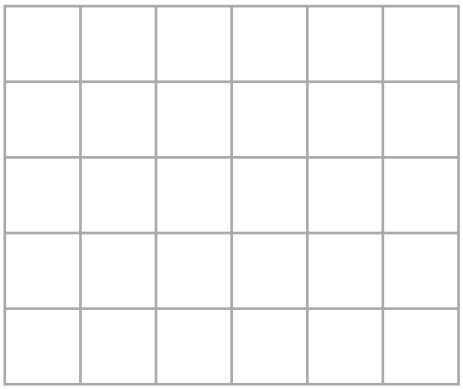
(1)

(b) In the space below, draw accurately a circle of radius 4 cm.
Use the point C as the centre of your circle.



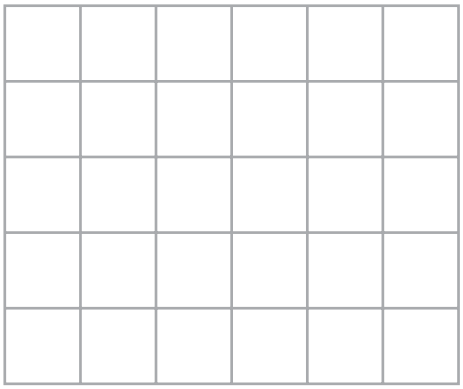
(1)

(c) On the grid below, draw an isosceles triangle.



(1)

(d) On the grid below, draw a quadrilateral with exactly 2 right angles.



(1)

(Total for Question 4 is 4 marks)

13

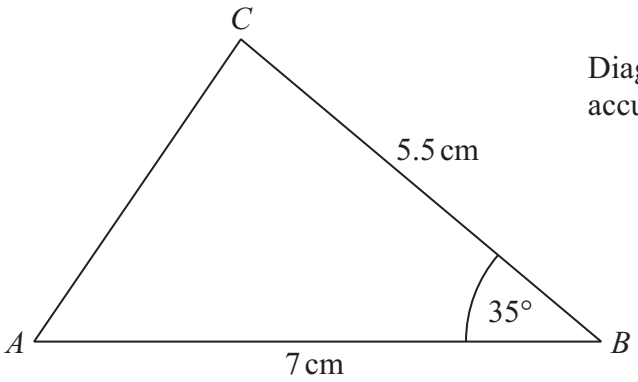


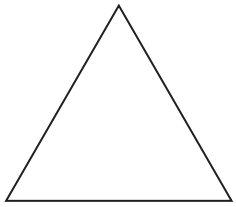
Diagram **NOT** accurately drawn

Make an accurate drawing of this triangle.
The line AB has been drawn for you.



(Total for Question 13 is 2 marks)

16 Here is an equilateral triangle.



(a) On the triangle, draw all the lines of symmetry.

(2)

(b) In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.
You must show all your construction lines.

(2)

Here is an equilateral triangle.

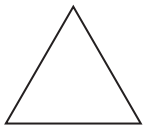
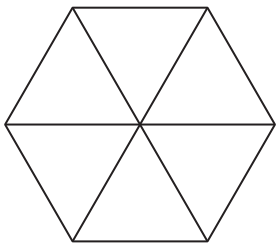


Diagram **NOT** accurately drawn

The perimeter of this equilateral triangle is 24 cm.

The hexagon below is made from 6 of these triangles.

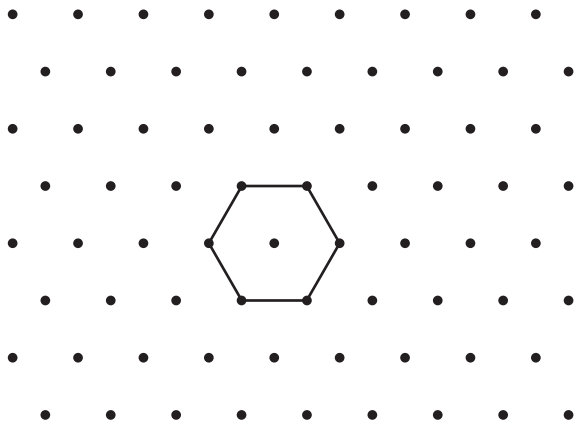


(c) Work out the perimeter of this hexagon.

..... cm

(2)

(d) On the grid below, show how the hexagon tessellates.
You should draw at least 6 hexagons.



(2)

(Total for Question 16 is 8 marks)

18 Here is a sketch of a triangle.

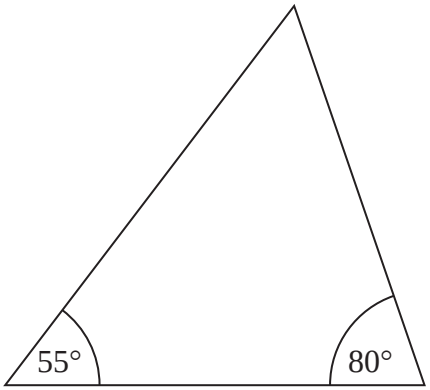


Diagram **NOT** accurately drawn

In the space below, make an accurate drawing of the triangle.

(Total for Question 18 is 3 marks)

14 (a) Draw an angle of 40° at the point *P*.



(1)

(b) Construct an equilateral triangle with sides of length 6 cm.

(2)

(Total for Question 14 is 3 marks)

15 Here is a triangle.

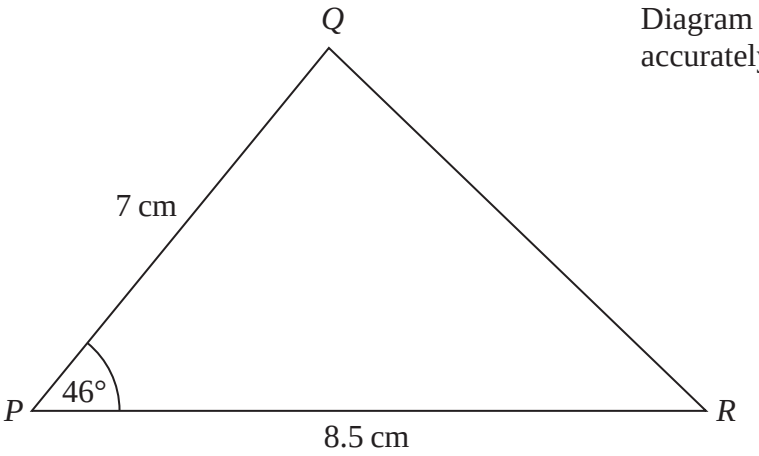


Diagram **NOT** accurately drawn

Make an accurate drawing of triangle *PQR*.
The line *PR* has already been drawn for you.

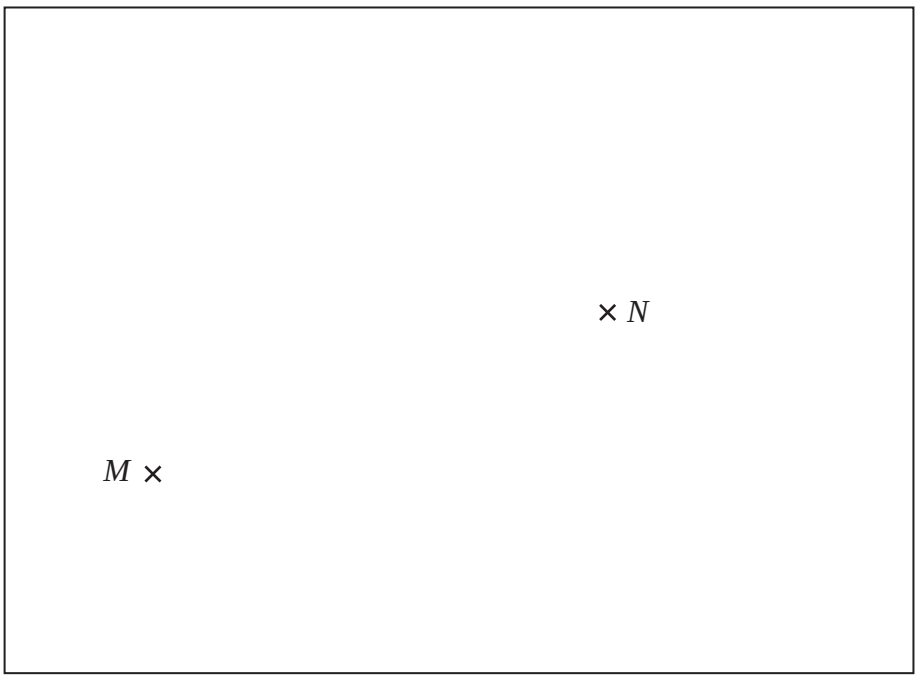
P ——————————————— *R*

(Total for Question 15 is 2 marks)

17 Here is a map.
The map shows two towns Marlford (M) and Newborough (N).

A company is going to build a supermarket.
The supermarket will be more than 10 km from Marlford and less than 6 km from Newborough.

Find and shade the region on the map where the company can build the supermarket.



Scale: 1 cm represents 2 km.

(Total for Question 17 is 3 marks)

1 Here is a straight line.

(a) Draw a line at least 5 cm long that is parallel to the straight line.

(1)

(b) Draw a circle of radius 4 cm.
Use the cross (×) as the centre of your circle.

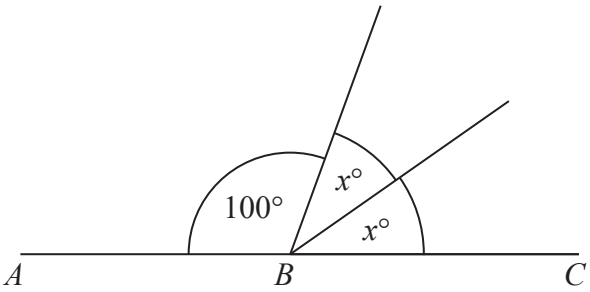
×

(1)

(Total for Question 1 is 2 marks)

6

Diagram **NOT** accurately drawn



ABC is a straight line.

(a) Work out the value of *x*.

x = ...

(2)

Here is a sketch of a triangle *PQR*.

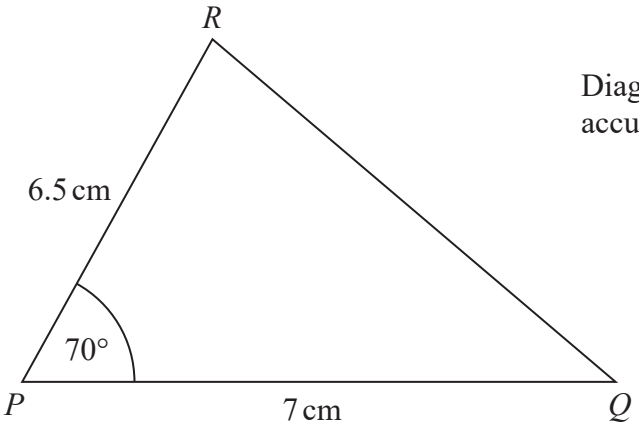


Diagram **NOT** accurately drawn

(b) What type of angle is the angle *QPR*?

.....

(1)

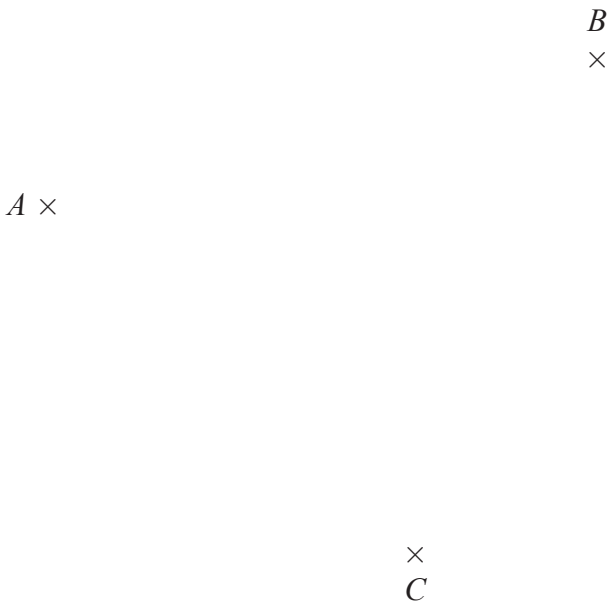
(c) In the space below, make an accurate drawing of triangle PQR.
The line PQ has been drawn for you.



(2)

(Total for Question 6 is 5 marks)

16 A, B and C are three points on a map.



1 cm represents 100 metres.

Point T is 250 metres from point A.
Point T is equidistant from point B and point C.

On the map, show one of the possible positions for point T.

(Total for Question 16 is 3 marks)

19 Here is a plan of a kitchen drawn to a scale of 1 : 30



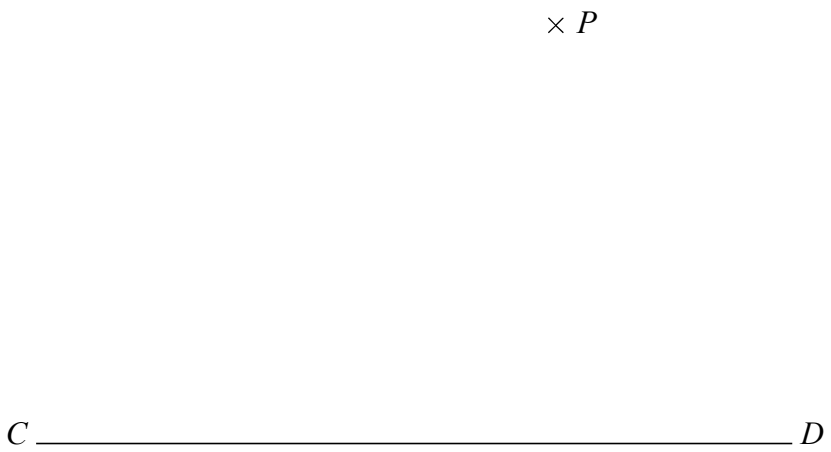
Sam is going to put a small table in the kitchen.

The table has to be
more than 180 cm from A
more than 150 cm from BC

Show, by shading on the diagram, the region where Sam can put the table.

(Total for Question 19 is 4 marks)

23 Use a ruler and compasses to construct the line from the point P perpendicular to the line CD.
You must show **all** construction lines.



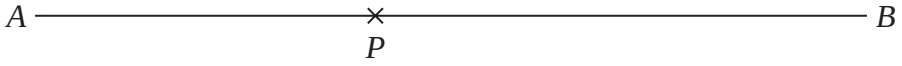
(Total for Question 23 is 2 marks)

17 Draw accurately an isosceles triangle with sides of length 8 cm, 6 cm and 6 cm.
One side of the triangle has been drawn for you.



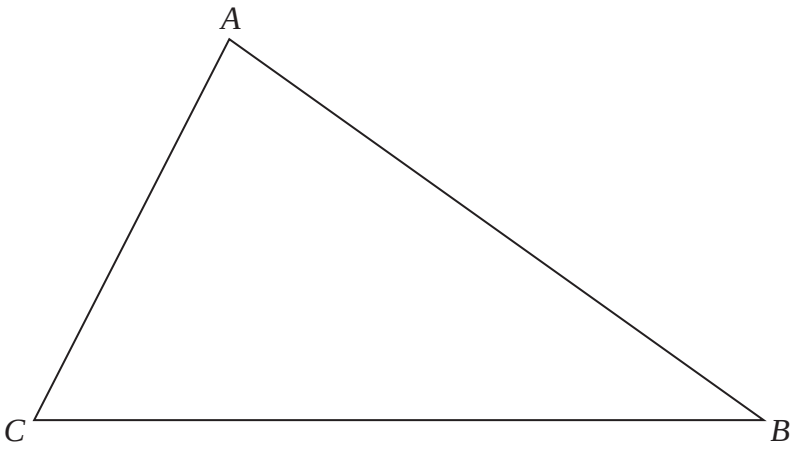
(Total for Question 17 is 2 marks)

22 The point P lies on the line AB.
Use ruler and compasses to construct an angle of 90° at P.
You must show all your construction lines.



(Total for Question 22 is 2 marks)

17 Here is a triangle *ABC*.



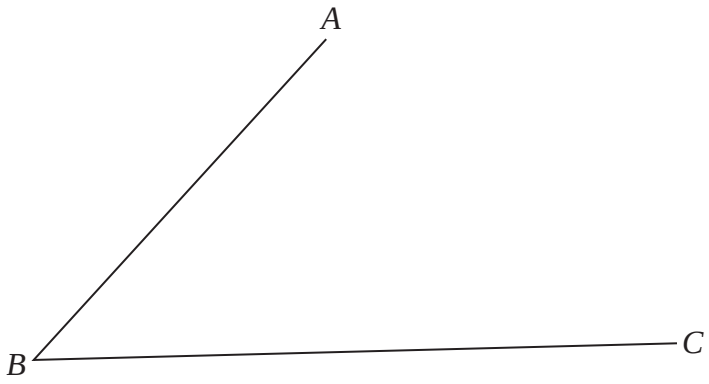
The region **R** consists of all points inside the triangle that are

less than 4 cm from *A*
and closer to *C* than to *B*.

On the diagram show, by shading, the region **R**.

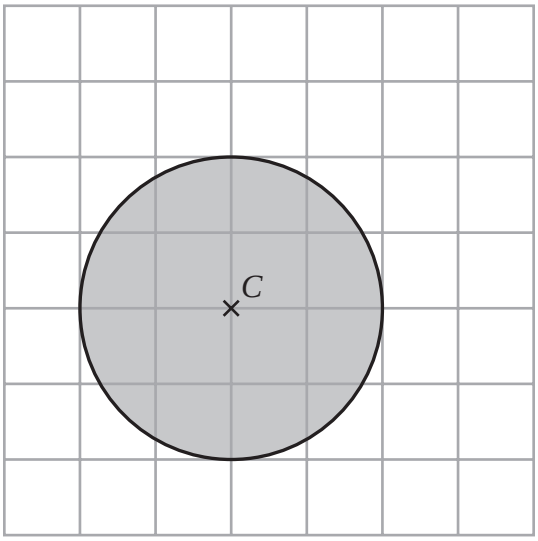
(Total for Question 17 is 3 marks)

19 Use ruler and compasses to construct the bisector of angle *ABC*.
You must show your construction lines.



(Total for Question 19 is 2 marks)

23 The point C is shown on a centimetre grid.



A point P is at least 2 cm from the point C.
Nadia is asked to shade the region where point P could be.

Her answer is shown on the grid.

Explain the mistake Nadia has made.

.....

.....

.....

(Total for Question 23 is 1 mark)