Area & Perimeter

Question Paper

Course	Edexcel IGCSE Maths
Section	4. Geometry & Trigonometry
Topic	Area & Perimeter
Difficulty	Very Hard

Time allowed: 110
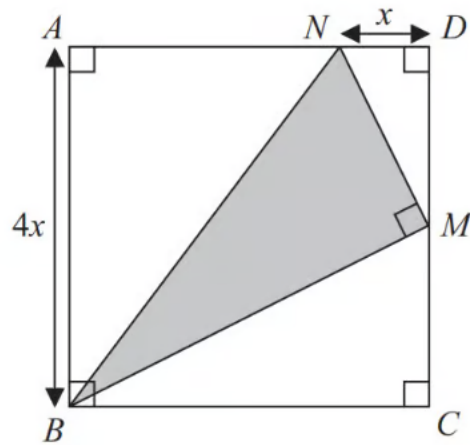
Score: /87

Percentage: /100

Question 1

Diagram **NOT** accurately drawn

$ABCD$ is a square with a side length of $4x$
M is the midpoint of DC.
N is the point on AD where $ND = x$

BMN is a right-angled triangle.

Find an expression, in terms of x, for the area of triangle BMN.
Give your expression in its simplest form.
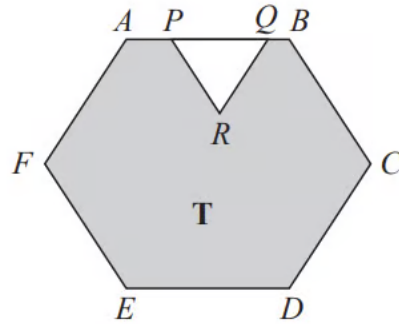
[4 marks]

Question 2

Diagram **NOT** accurately drawn

The diagram shows a shaded region **T** formed by removing an equilateral triangle PQR from a regular hexagon $ABCDEF$.

The points P and Q lie on AB such that $AB = 1.5 \times PQ$.

Given that the area of region **T** is $72\sqrt{3}$ cm^2 work out the length of PQ.

.... cm

[4 marks]

Question 3

The diagram shows one face of a wall.
This face is in the shape of a pentagon with exactly one line of symmetry.
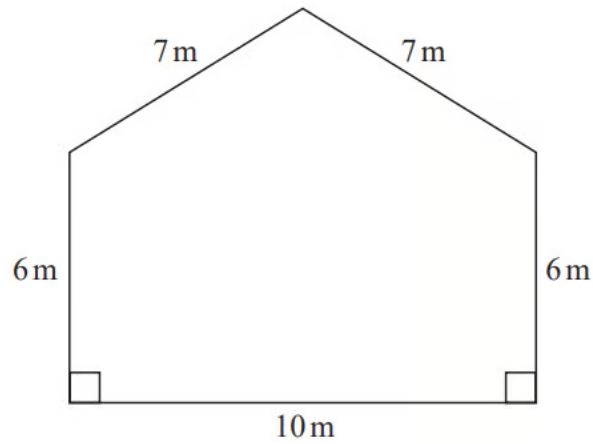
7 m   7 m

Diagram **NOT**
accurately drawn

6 m   6 m

10 m

Omondi is going to paint this face of the wall once.
He has to buy all the paint that he needs to use.

The paint in each tin of paint Omondi is going to buy will cover $16\,m^2$ of the face of the wall.

Work out the least number of tins of paint Omondi will need to buy.
Show your working clearly.

[5 marks]

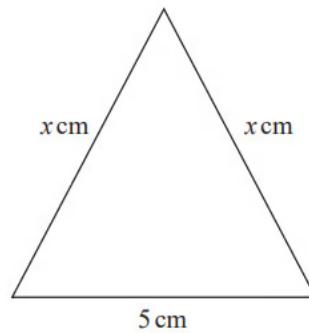## Question 4

The diagram shows an isosceles triangle.

Diagram **NOT** accurately drawn

The area of the triangle is 12 cm^2

Work out the perimeter of the triangle.
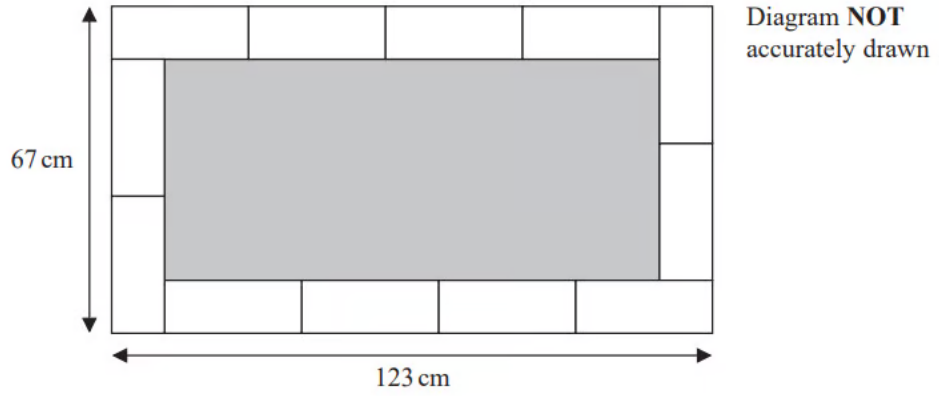Give your answer correct to 3 significant figures.

cm

[4 marks]

Question 5

Calvin has 12 identical rectangular tiles.

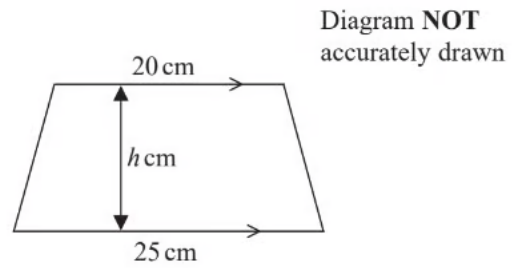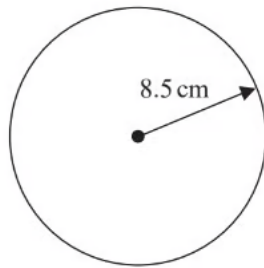He arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram below.

Diagram **NOT** accurately drawn

67 cm

123 cm

Work out the area of the shaded rectangle.

[5 marks]

Question 6

The diagram shows a circle and a trapezium.

8.5 cm

Diagram **NOT** accurately drawn

20 cm

h cm

25 cm

The height of the trapezium is h cm.

The area of the circle is equal to the area of the trapezium.

Work out the value of h.
Give your answer correct to 1 decimal place.

[4 marks]

Question 7

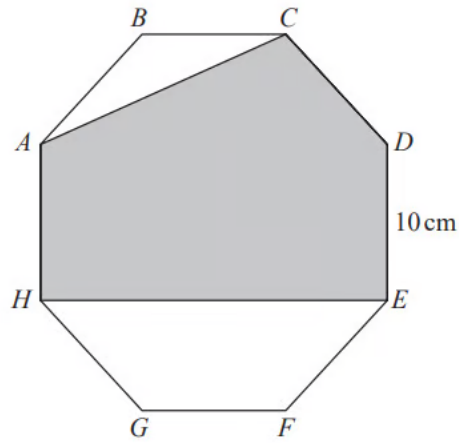The diagram shows a regular octagon $ABCDEFGH$.

Diagram **NOT**
accurately drawn

Each side of the octagon has length 10cm.

Find the area of the shaded region $ACDEH$.
Give your answer correct to the nearest cm^2

.... cm^2

[6 marks]

Question 8

A, B and C are points on a circle with centre O.
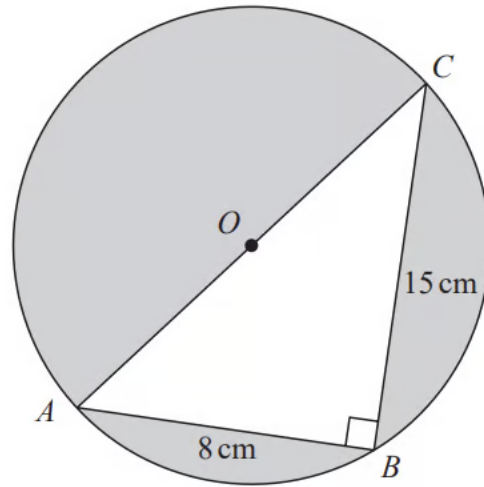
Diagram **NOT** accurately drawn

AOC is a diameter of the circle.

$AB = 8$ cm $BC = 15$ cm

Angle $ABC = 90°$

Work out the total area of the regions shown shaded in the diagram.
Give your answer correct to 3 significant figures.

[5 marks]

Question 9

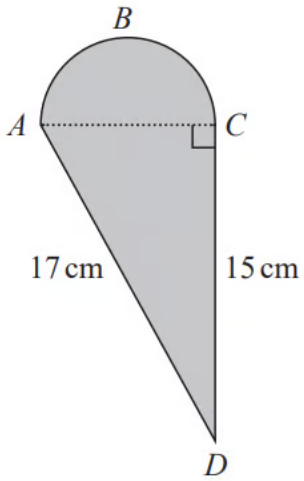The diagram shows a shaded shape $ABCD$ made from a semicircle ABC and a right-angled triangle ACD.

Diagram **NOT**
accurately drawn

AC is the diameter of the semicircle ABC.

Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

.....................cm

[5 marks]

Question 10

The diagram shows two circles such that the region **R**, shown shaded in the diagram, is the region common to both circles.
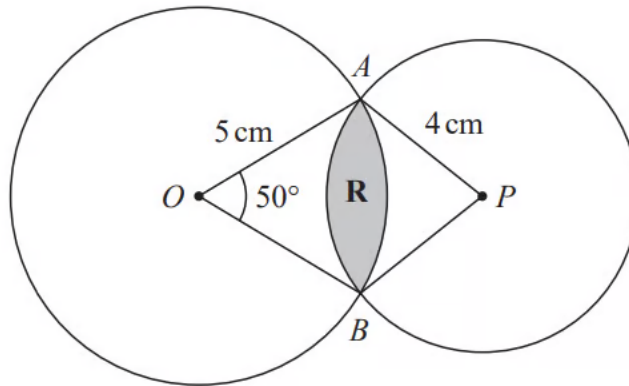
Diagram **NOT** accurately drawn

5 cm   50°   **R**   4 cm

O • *A* *B* • *P*

One of the circles has centre O and radius 5 cm.
The other circle has centre P and radius 4 cm.
Angle $AOB = 50°$

Calculate the area of region **R**.
Give your answer correct to 3 significant figures.

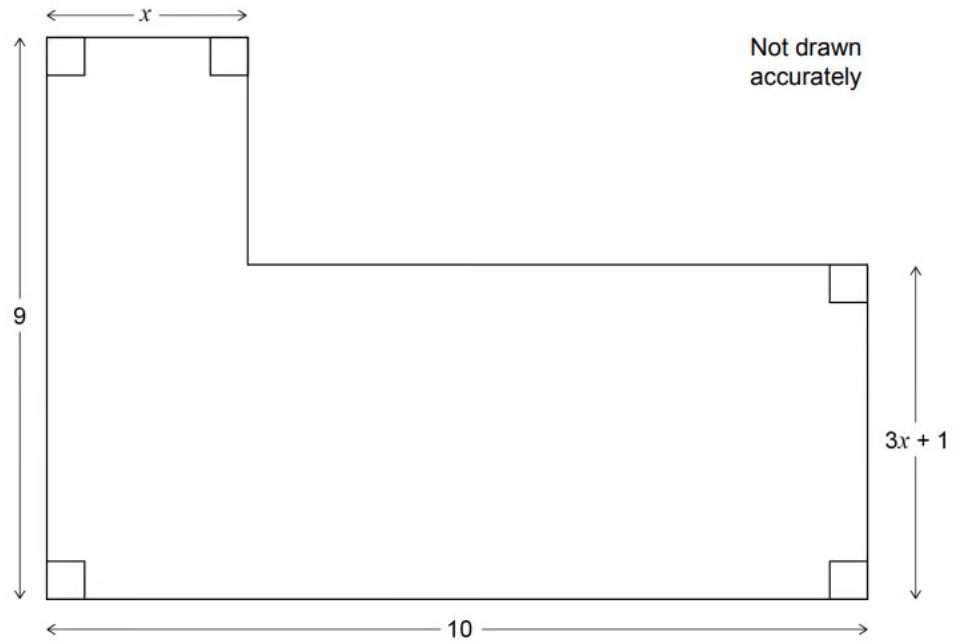.. cm^2

[6 marks]

Question 11

Here is an L-shape.

All dimensions are in centimetres.

Not drawn accurately

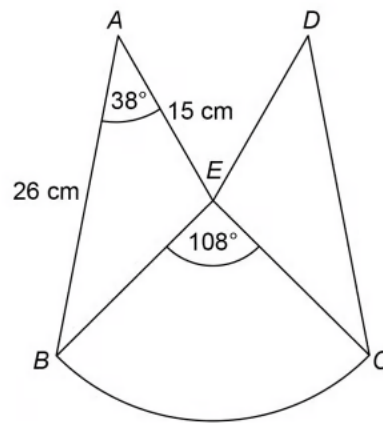The area of the L-shape is 65 cm^2

Work out the value of x.

[6 marks]

Question 12

The diagram shows a logo.

ABE and DCE are congruent triangles.
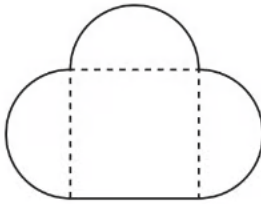BCE is a sector of a circle, centre E.

Show that the area of the logo is 510 cm^2 to 2 significant figures.

[5 marks]

Question 13

The diagram shows Jane's lawn.
It is in the shape of a square of side 36m and three semi-circles.

Not to scale

She is going to spread fertiliser on the lawn at a rate of 30g per square metre.
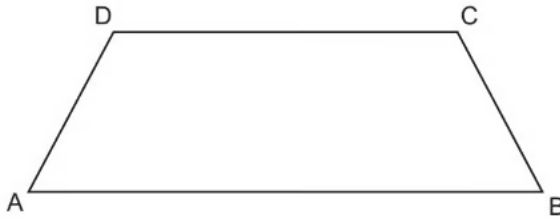The fertiliser is only sold in 10kg bags costing £15.80 each.

Calculate the cost of buying the bags of fertiliser for her lawn.
You must show all your working.

£ ....

[6 marks]

Question 14

ABCD is a trapezium.

Not to scale

The perimeter of the trapezium is 56 cm.
The ratio AD : AB : DC : BC = 5 : 12 : 6 : 5.
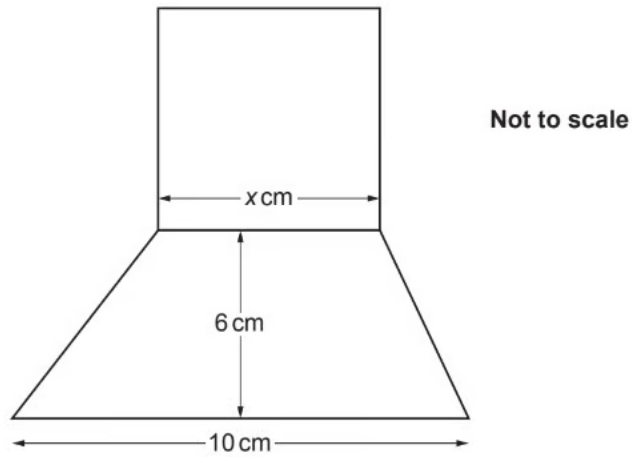
Calculate the area of the trapezium.
Show your working.

.....................................cm^2

[7 marks]

Question 15

In the diagram, the square and the trapezium share a common side of length x cm.

Not to scale

The area of the square is equal to the area of the trapezium.
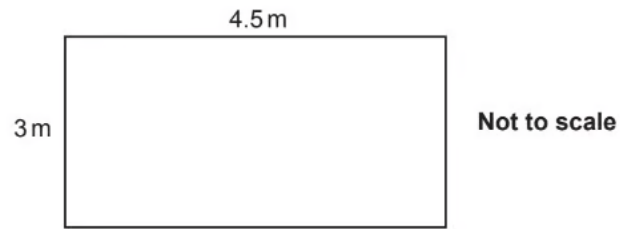
Work out the value of x.

x = ...

[6 marks]

Question 16

Here is the floor plan of a rectangular room.

4.5 m

3 m

Not to scale

Tim buys carpet tiles for this room.

Each tile is a square measuring 50 cm by 50 cm.
The tiles are only sold in packs of ten.
Each pack costs £20.
Tim pays for fitting at a rate of £7.50 per square metre, with any fraction of a square metre rounded up.

Work out the **total** cost of the tiles and fitting.

£ ....

[6 marks]

Question 17

The lengths of the sides of two squares are integers, when measured in cm.
The difference between the areas of the two squares is 36cm^2.

Find the lengths of the sides of the two squares.

.... cm
.... cm

[3 marks]