

- 2 The diagram shows a rectangle $ABCD$ and a semicircle with diameter AB where $AB = 12$ cm. The point E lies on DC and also on the semicircle.

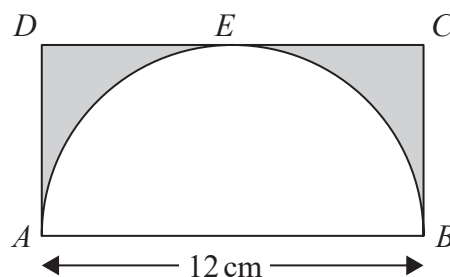


Diagram **NOT**
accurately drawn

Work out the area of the shaded region.
Give your answer correct to 3 significant figures.

..... cm²

(Total for Question 2 is 3 marks)



- 4 The diagram shows the front of a wooden door with a semicircular glass window.

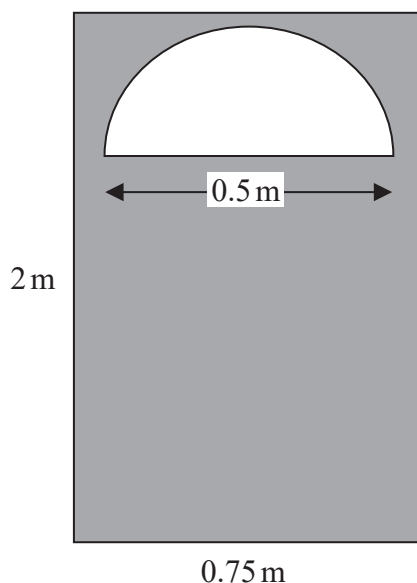


Diagram **NOT**
accurately drawn

Julie wants to apply 2 coats of wood varnish to the front of the door, shown shaded in the diagram.

250 millilitres of wood varnish covers 4 m^2 of the wood.

Work out how many millilitres of wood varnish Julie will need.
Give your answer correct to the nearest millilitre.

..... millilitres

(Total for Question 4 is 5 marks)



- 8 A , B and C are points on a circle with centre O .

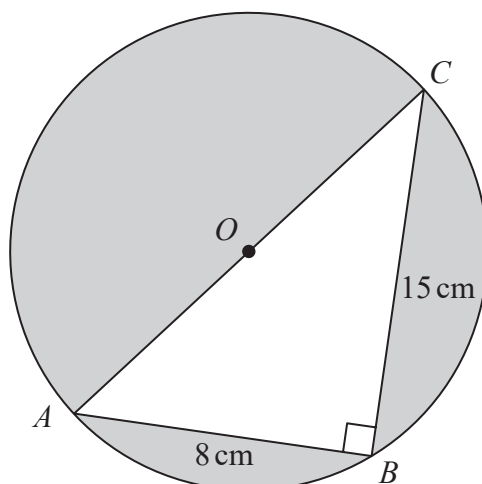


Diagram **NOT**
accurately drawn

AOC is a diameter of the circle.

$AB = 8 \text{ cm}$ $BC = 15 \text{ cm}$

Angle $ABC = 90^\circ$

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

..... cm^2

(Total for Question 8 is 5 marks)



- 20 The diagram shows equilateral triangle ABC with sides of length 10 cm. A circle is drawn inside the triangle.

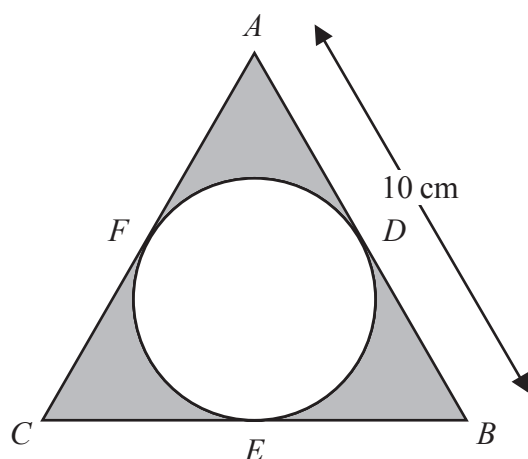


Diagram **NOT**
accurately drawn

D , E and F are points on the circle.

ADB , BEC and CFA are tangents to the circle.

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

..... cm^2

(Total for Question 20 is 4 marks)



- 20 The diagram shows four identical circles drawn inside a square.

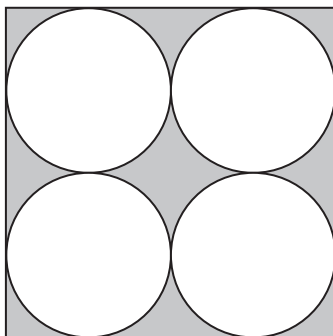


Diagram **NOT**
accurately drawn

Each circle touches two other circles and two sides of the square.

The region inside the square that is outside the circles, shown shaded in the diagram, has a total area of 40 cm^2

Work out the perimeter of the square.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 20 is 4 marks)



- 21 The diagram shows a square $ABCD$ and a circle.

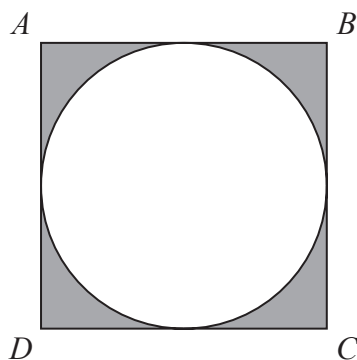


Diagram **NOT**
accurately drawn

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

The sides of the square are tangents to the circle.

The total area of the shaded regions is 80 cm^2

Work out the length of AC

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 21 is 5 marks)



20

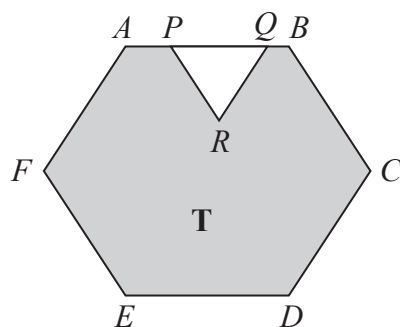


Diagram **NOT**
accurately drawn

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 $72\sqrt{3} \text{ cm}^2$

work out the length of PQ .

..... cm

(Total for Question 20 is 4 marks)



P 6 6 3 0 1 A 0 2 3 2 8

- 25 The diagram shows an equilateral triangle ABC and a circle with centre O

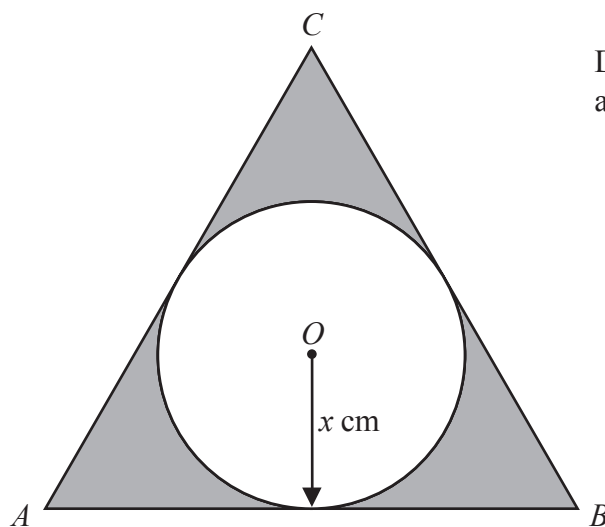


Diagram **NOT**
accurately drawn

AB , BC and CA are tangents to the circle.

The radius of the circle is x cm

The total area, in cm^2 , of the regions shown shaded in the diagram is nx^2

Find the value of n

Give your answer correct to 3 significant figures.

$n = \dots\dots\dots$

(Total for Question 25 is 5 marks)

