**GCSE Mathematics (Grade 9-1)**

**Problem Solving
Area of a Circle Set 3
Sectors and Segments – Questions**

Some useful strategies in problem-solving

- Read the question carefully
- Sketch a diagram where applicable
- Take note of key information
- Write down any formulae you may need
- Tackle the problem in bite-size rather than as a whole
- Concentrate on the part of the problem you understand and start from there
- Collaborate with a partner and share ideas
- Use a dictionary to find the meaning of any confusing words
- Check that your answers make sense in the context of the question
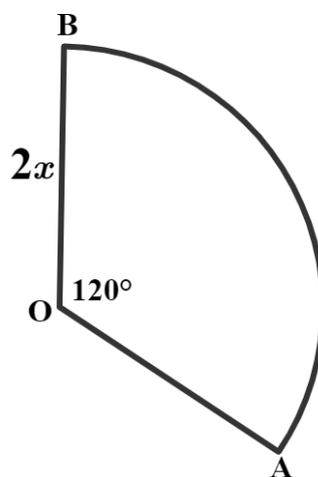
1 The diagram below shows a circle of radius of 3 cm
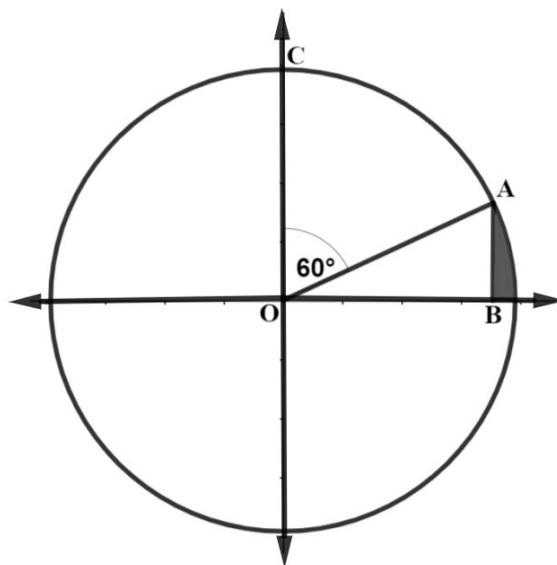
Angle AOC = 60°
Angle ABO = 90°
Calculate the shaded area to 1 decimal place

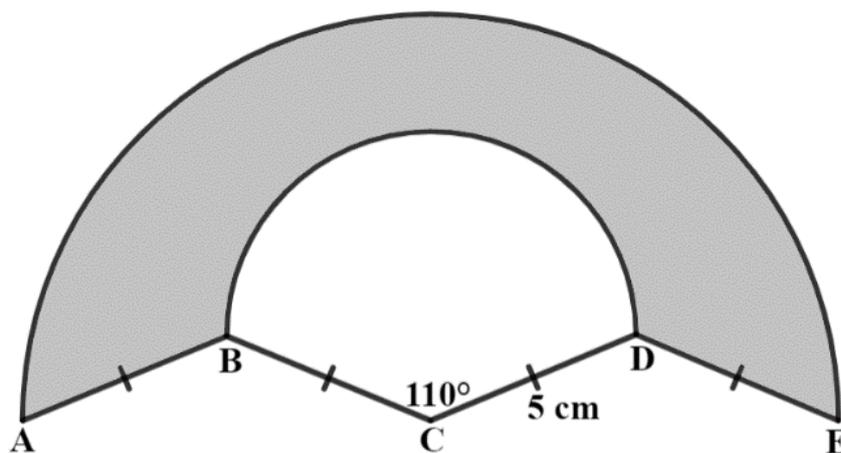**[4marks]**

2 ABO is a sector of radius $2x$

Angle AOB = 120°
Given that the perimeter of the sector is 25 cm, calculate the value of x
Give your answer to 1 decimal place.

[5marks]

3 The diagram below shows a semi-circle and a sector

B

110° 5 cm

D

A   C   E

AB = BC = CD = DE = 5cm

Angle ABC = Angle BCD = Angle CDE = 110°
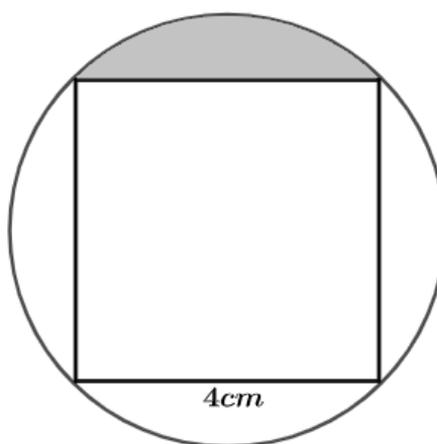
AE is the diameter of the semi-circle.

C is the midpoint of AE

Calculate the shaded area

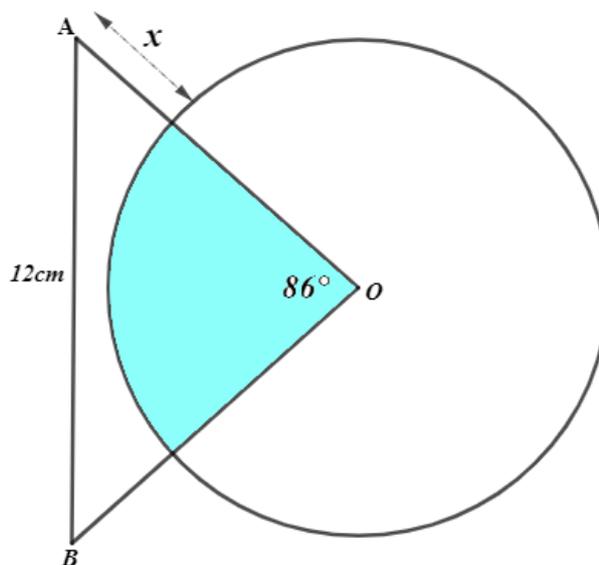Give your answer to 3 significant figures.

[6marks]

4 The diagram shows a square of side 4 cm and a circle. The vertices of the square lie on the circumference of the circle

4cm

Show that the exact area of the shaded segment is $2(\pi - 2)$

[5marks]

5 The diagram below shows a circle with centre O.
ABO is an isosceles triangle.
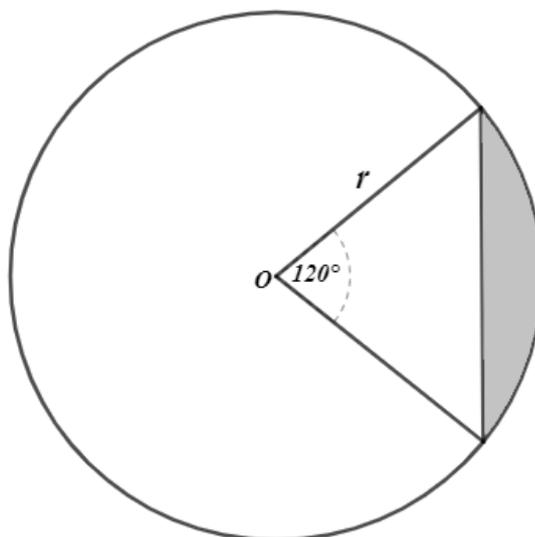

Where AO = BO and angle AOB is 86°.
The area of the shaded sector is 28.85 cm²
Calculate the value of x
Give your answer to 1 significant figure.　　　　**[6marks]**

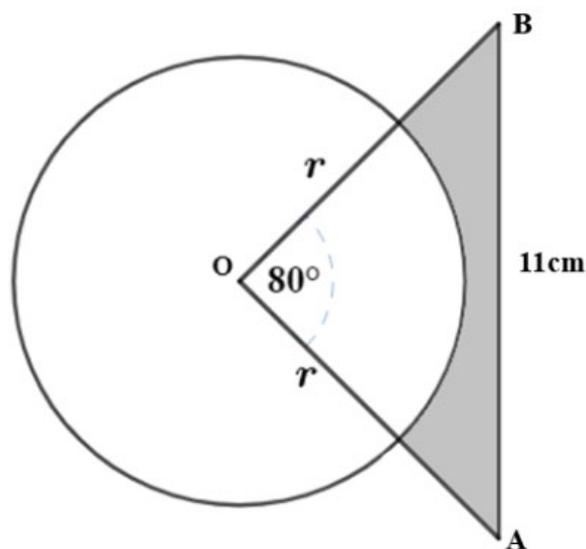**6** The diagram below shows a circle with centre O

The radius of the circle is r.
The area of the shaded segment is 12.5 cm²
Calculate the value of r to 1 decimal place.　　　　**[6marks]**

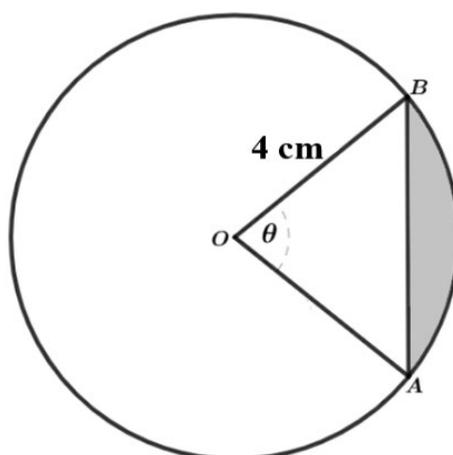**7** The diagram shows a circle with centre O and radius *r*.

AO = BO
AB = 11 cm
The shaded area is 6 cm²
Calculate the radius of the circle to 1 decimal place.

[6marks]

8 The diagram shows a circle with centre O.

The radius of the circle is 4 cm

Given that AB = 2.1 cm, what is the size of the shaded area?

Give your answer to 2 decimal places.

[6marks]

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