

1.

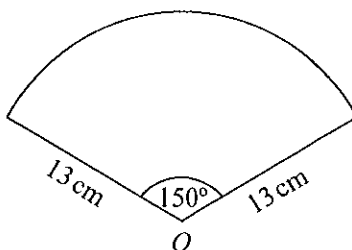


Diagram **NOT** accurately drawn

The diagram shows a sector of a circle, centre O .
 The radius of the circle is 13 cm.
 The angle of the sector is 150° .

Calculate the area of the sector.
 Give your answer correct to 3 significant figures.

$$\frac{150}{360} \times \pi (13)^2 = 221.2204827$$

..... 221 cm^2
 (Total 2 marks)

2.

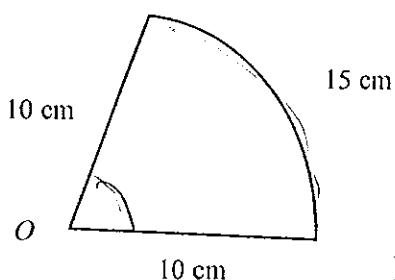


Diagram **NOT** accurately drawn

The diagram shows a sector of a circle, centre O , radius 10 cm.
 The arc length of the sector is 15 cm.

Calculate the area of the sector.

$$\text{arc length} = \frac{\theta}{360} \times 2\pi r$$

$$15 = \frac{\theta}{360} \times 2(\pi)(10)$$

$$\theta = 85.94366927$$

$$\frac{85.94366927}{360} \times \pi (10)^2$$

..... 75 cm^2
 (Total 4 marks)

3.

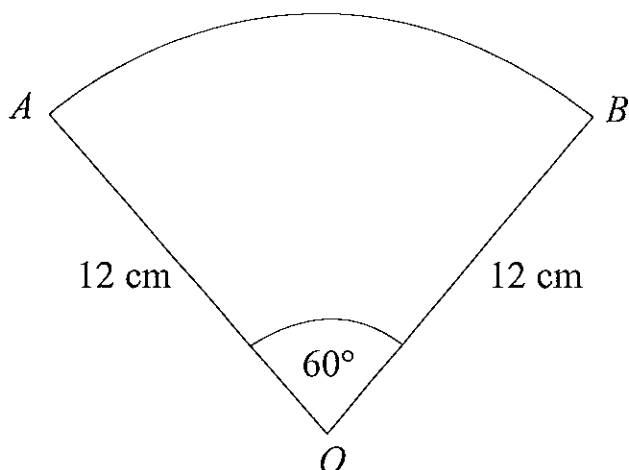


Diagram **NOT** accurately drawn

OAB is a sector of a circle, centre O .
Angle $AOB = 60^\circ$.
 $OA = OB = 12$ cm.

Work out the length of the arc AB .
Give your answer in terms of π .

$$\frac{60}{360} \times 2(\pi)(12)$$
$$= 4\pi$$

..... 4π cm
(Total 3 marks)

4.

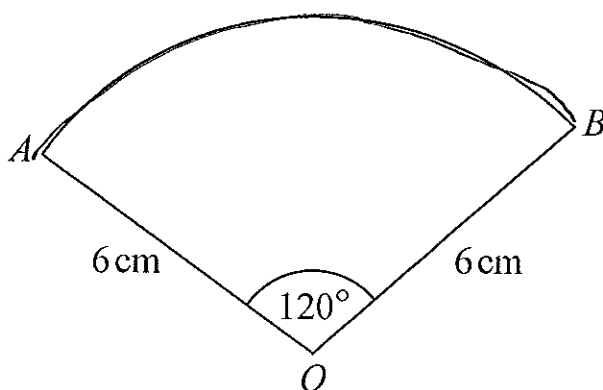


Diagram **NOT** accurately drawn

The diagram shows a sector of a circle, centre O .

The radius of the circle is 6 cm .

Angle $AOB = 120^\circ$.

Work out the **perimeter** of the sector.

Give your answer in terms of π in its simplest form.

$$\begin{aligned}\text{Arc Length} &= \frac{120}{360} \times 2(\pi)(6) \\ &= 4\pi\end{aligned}$$

$$\text{Perimeter} = 4\pi + 12$$

$$\begin{aligned}& \dots\dots\dots 4\pi + 12 \dots\dots\dots \text{ cm} \\ & \text{(Total 3 marks)}\end{aligned}$$

5.

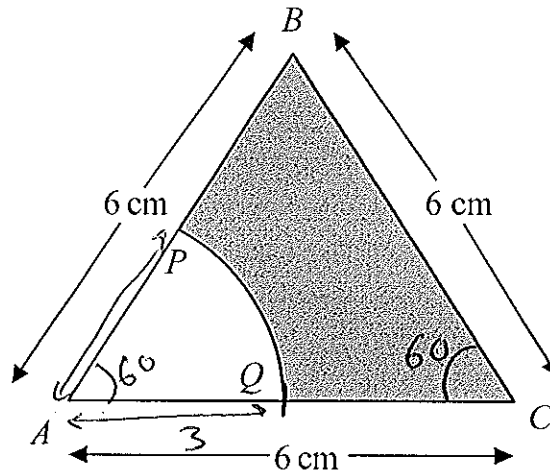


Diagram NOT accurately drawn

The diagram shows an equilateral triangle ABC with sides of length 6 cm .

P is the midpoint of AB .

Q is the midpoint of AC .

APQ is a sector of a circle, centre A .

Calculate the area of the shaded region.

Give your answer correct to 3 significant figures.

$$\text{Shaded Area} = \text{Triangle Area} - \text{Sector Area}$$

$$\begin{aligned} \triangle &= \frac{1}{2} (6)(6) \sin(60) \\ &= 9\sqrt{3} \quad (15.58845727) \end{aligned}$$

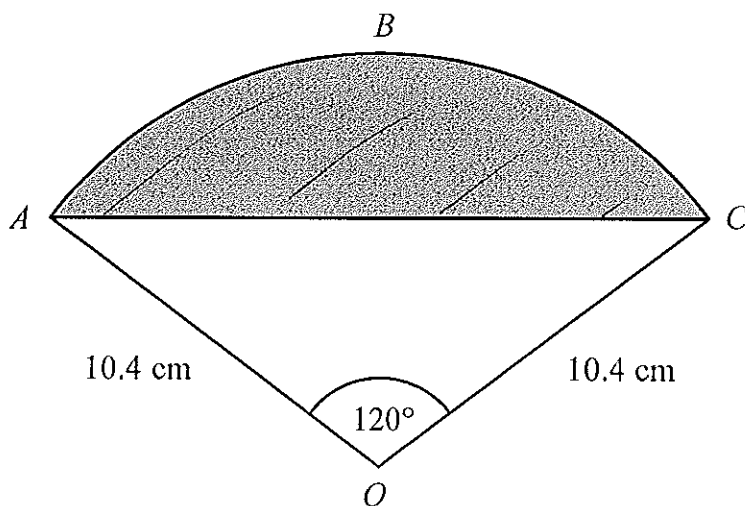
$$\begin{aligned} \text{Sector} &= \frac{60}{360} \times \pi (3)^2 \\ &= \frac{3}{2} \pi \end{aligned}$$

$$\begin{aligned} \text{Shaded Area} &= 9\sqrt{3} - \frac{3}{2} \pi \\ &= 10.87606829 \end{aligned}$$

..... 10.9 cm^2
 (Total 4 marks)

6.

Diagram **NOT** accurately drawn



The diagram shows a sector $OABC$ of a circle with centre O .
 $OA = OC = 10.4 \text{ cm}$.
 Angle $AOC = 120^\circ$.

- (a) Calculate the length of the arc ABC of the sector.
 Give your answer correct to 3 significant figures.

$$\begin{aligned}
 & \frac{120}{360} \times 2(\pi)(10.4) \\
 & = 21.78170906 \dots \dots \dots 21.8 \dots \dots \dots \text{cm}
 \end{aligned}$$

(3)

- (b) Calculate the area of the shaded segment ABC .
 Give your answer correct to 3 significant figures.

Area of Sector - Area of triangle.

$$\begin{aligned}
 & \frac{120}{360} \times \pi(10.4)^2 - \frac{1}{2}(10.4)(10.4) \sin(120) \\
 & = 66.4302333 \dots \dots \dots 66.4 \dots \dots \dots \text{cm}^2
 \end{aligned}$$

(4)

(Total 7 marks)

7. The diagram shows a sector of a circle with centre O .
The radius of the circle is 8 cm.

PRS is an arc of the circle.
 PS is a chord of the circle.
Angle $POS = 40^\circ$

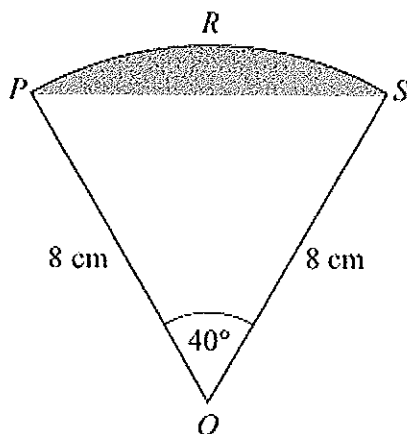


Diagram NOT
accurately drawn

Calculate the area of the shaded segment.
Give your answer correct to 3 significant figures.

$$\begin{aligned} & \text{Sector Area} - \text{Triangle Area.} \\ & \frac{40}{360} \times \pi (8)^2 - \frac{1}{2}(8)(8) \sin(40) \\ & = 1.771010916 \end{aligned}$$

..... 1.77 cm^2

(Total 5 marks)

8.

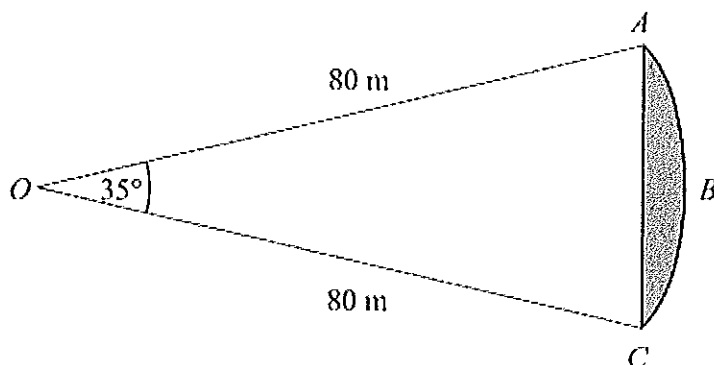


Diagram NOT accurately drawn

ABC is an arc of a circle centre O with radius 80 m.
 AC is a chord of the circle.
 Angle $AOC = 35^\circ$.

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

$$\frac{35}{360} \times \pi (80)^2 - \frac{1}{2} (80)(80) \sin(35)$$

$$= 119.3241659$$

.....119..... m²

(Total 5 marks)