1. **[3 marks]**

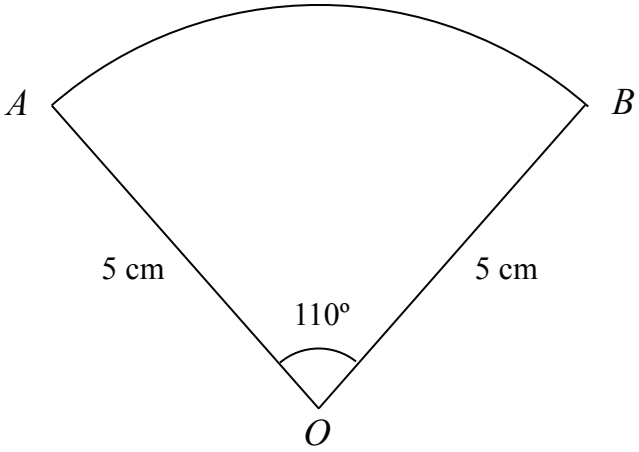


Diagram **NOT** accurately drawn

The diagram shows a sector of a circle, centre O.
The radius of the circle is 5 cm.
Angle $AOB = 110°$.

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

..... cm

2. **[3 marks]**

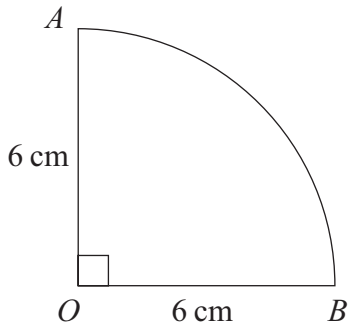


Diagram **NOT** accurately drawn

The diagram shows a shape.
AB is an arc of a circle, centre O.
Angle $AOB = 90°$.
$OA = OB = 6$ cm.

Calculate the perimeter of the shape.
Give your answer correct to 3 significant figures.

..... cm

3. **[3 marks]**

The diagram shows a sector of a circle, radius 45 cm, with angle 84°.

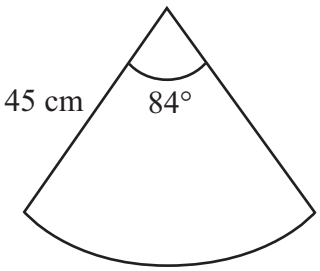


Diagram **NOT** accurately drawn

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

..... cm^2

4. **[4 marks]**

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

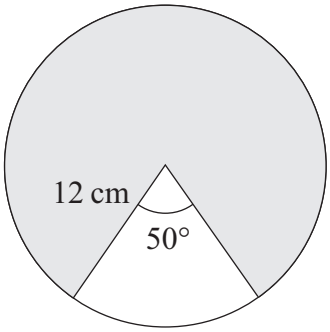


Diagram **NOT** accurately drawn

..... cm^2

5. **[3 marks]**

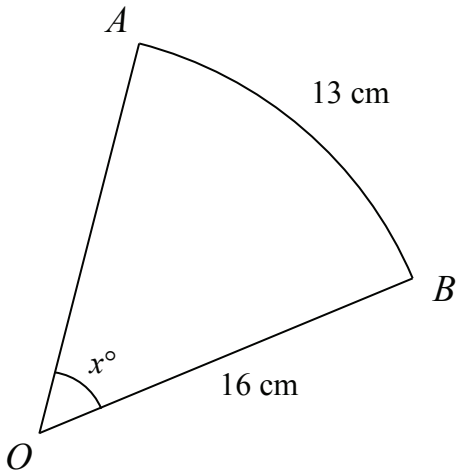


Diagram **NOT** accurately drawn

AB is an arc of length 13 cm of a circle centre *O*. The radius of the circle is 16 cm.
Calculate the value of *x*.

x = ...

6. **[5 marks]**

A fan is shaped as a sector of a circle, radius 12 cm, with angle 110° at the centre.

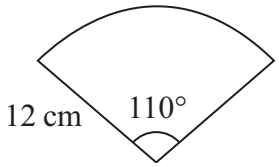


Diagram **NOT** accurately drawn

(a) Calculate the area of the fan.

..... cm^2

(2)

Another fan is shaped as a sector of a circle, radius r cm, with angle 120° at the centre.

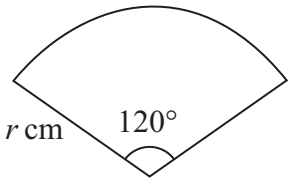


Diagram **NOT** accurately drawn

(b) Show that the total perimeter of this fan is $\frac{2}{3}r(3 + \pi)$ cm.

(3)

7. **[3 marks]**

In the diagram, a sector of a circle of radius 9 cm is shaded.
The area of the sector is 72π cm^2.

Calculate the value of x.

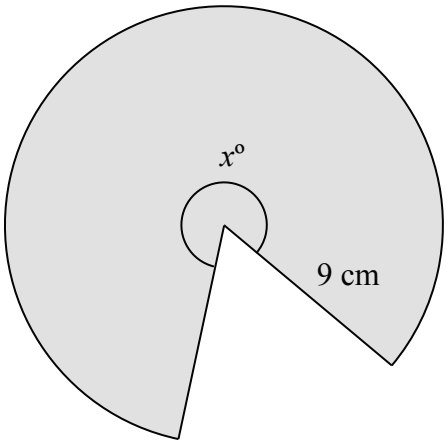


Diagram **NOT** accurately drawn

$x =$ .....

8. **[5 marks]**

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

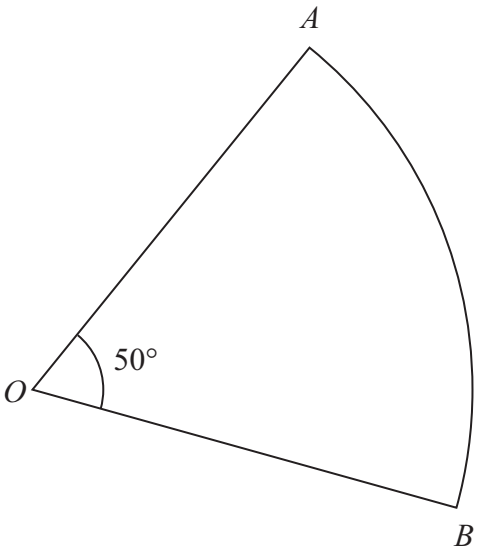


Diagram **NOT** accurately drawn

Angle $AOB = 50°$
Sector OAB has area 20π cm^2

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

..... cm

9. **[5 marks]**

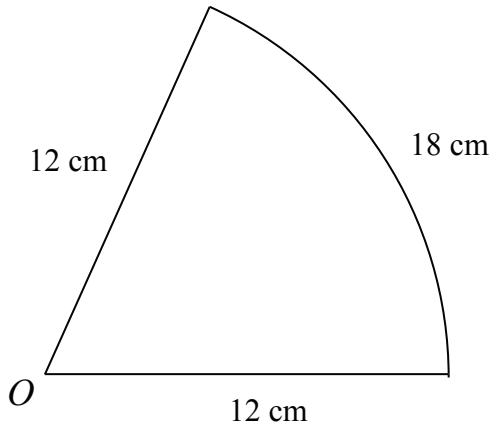


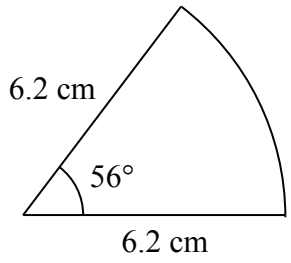
Diagram **NOT** accurately drawn

The diagram shows a sector of a circle, centre O, radius 12 cm.
The arc length of the sector is 18 cm.

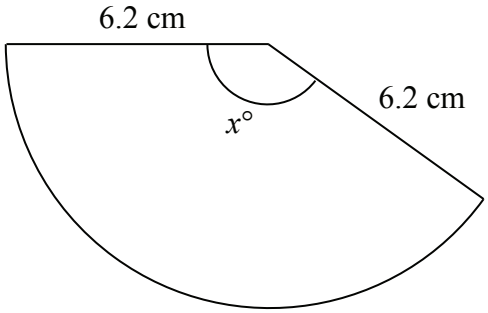
Calculate the area of the sector.

..... cm^2

10. **[6 marks]**



A



B

Diagrams **NOT** accurately Drawn

The diagram shows two different sectors from a circle of radius 6.2 cm

(a) Calculate the perimeter of sector **A**.

..... cm

(3)

(b) The area of sector **B** is 48 cm^2.
Calculate the value of x.

.....

(3)

11. **[5 marks]**

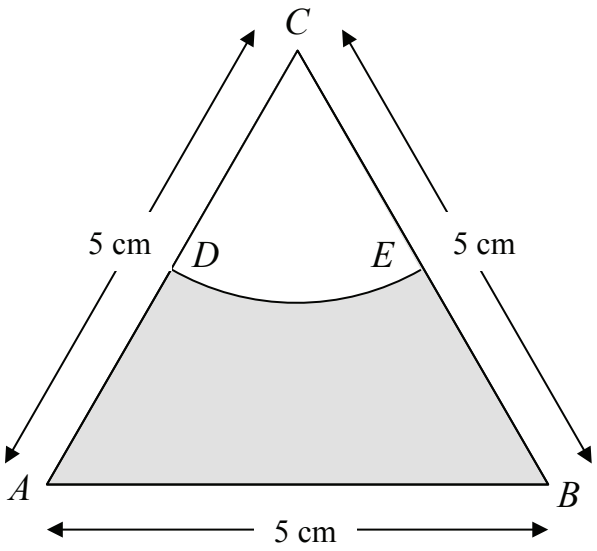


Diagram **NOT** accurately drawn

The diagram shows an equilateral triangle ABC with sides of length 5 cm.
D is the midpoint of AC.
E is the midpoint of BC.
CDE is a sector of a circle, centre C.

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

..... cm^2

12. **[3 marks]**

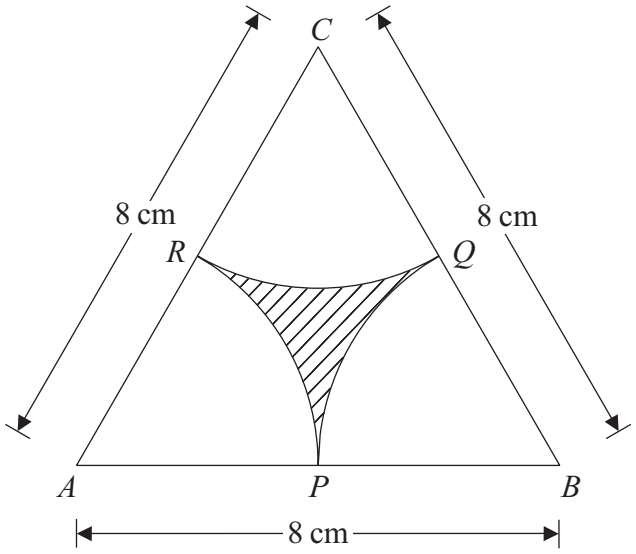


Diagram **NOT** accurately drawn

ABC is an equilateral triangle of side 8 cm.
With the vertices *A*, *B* and *C* as centres, arcs of radius 4 cm are drawn to cut the sides of the triangle at *P*, *Q* and *R*.
The shape formed by the arcs is shaded.

(a) Calculate the perimeter of the shaded shape.
Give your answer correct to 1 decimal place.

..... cm
(3)

13. **[5 marks]**

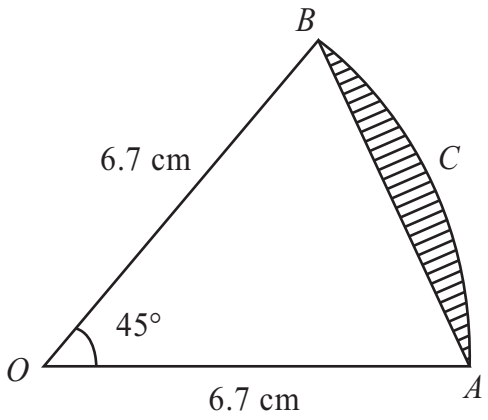


Diagram **NOT** accurately drawn

AB is a chord of a circle, centre *O*.
ACB is an arc of the circle.
OA = *OB* = 6.7 cm.
Angle *AOB* = 45°.

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

..... cm^2

14. **[6 marks]**

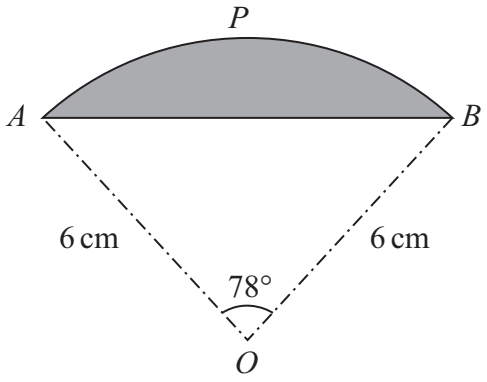


Diagram **NOT** accurately drawn

The diagram shows a sector $OAPB$ of a circle, centre O.
AB is a chord of the circle.
The radius of the circle is 6 cm.
Angle $AOB = 78°$.

Calculate the perimeter of the shaded **segment** APB.
Give your answer correct to 3 significant figures.

..... cm