

Arcs, Sectors and Segments

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **27**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. You may use a calculator.

- 1** The diagram shows a sector OPQ of a circle, centre O .

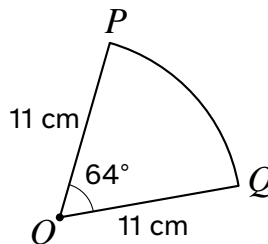


Diagram **NOT** accurately drawn

Work out the length of arc PQ .
Give your answer correct to 3 significant figures.

..... cm
(2)

(Total for Question 1 is 2 marks)

- 2** The arc length of a sector is 5π cm and the radius is 9 cm.
Find the angle of the sector.

..... $^\circ$
(2)

(Total for Question 2 is 2 marks)

- 3 Show that the area of a sector of radius r and angle 45° is $\frac{\pi r^2}{8}$

(1)

(Total for Question 3 is 1 mark)

- 4 The diagram shows a flower bed in the shape of a sector of a circle, centre O , radius 10 m.

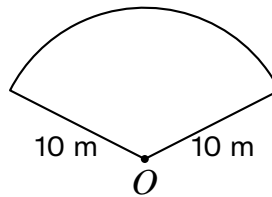


Diagram **NOT** accurately drawn

The area of the flower bed is $35\pi \text{ m}^2$

Work out, in terms of π , the length of the curved edge of the flower bed.

..... m

(3)

(Total for Question 4 is 3 marks)

- 5 The diagram shows a sector of a circle, centre O , radius 10 cm, with angle 120° . The shaded region is a segment.

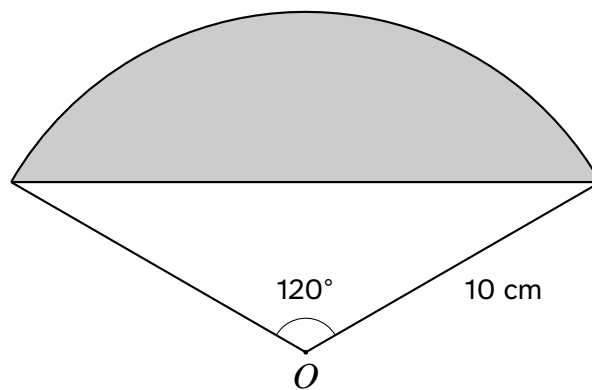


Diagram **NOT** accurately drawn

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

..... cm^2
(4)

- (b) Calculate the perimeter of the shaded segment.

..... cm
(4)

(Total for Question 5 is 8 marks)

- 6 The diagram shows sector OPQ . O is the centre of the circle.
Angle $POQ = 140^\circ$

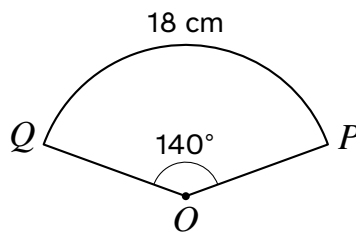


Diagram **NOT** accurately drawn

The length of arc PQ is 18 cm.
Work out the area of sector OPQ .
Give your answer correct to 3 significant figures.

..... cm^2
(4)

(Total for Question 6 is 4 marks)

- 7 A logo is made from a circle, centre O , radius 4.5 cm.
A sector with angle x is cut out of the circle.
The shaded shape is the logo.

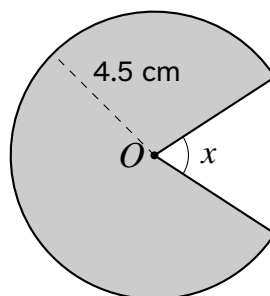


Diagram **NOT** accurately drawn

The area of the logo is 52 cm^2
Work out the size of angle x .
Give your answer correct to the nearest degree.

.....°
(3)
(Total for Question 7 is 3 marks)

- 8 OPQ is a sector of a circle, centre O , radius 9 cm.
 Angle $POQ = 50^\circ$
 R is the point on OQ such that PR is perpendicular to OQ .

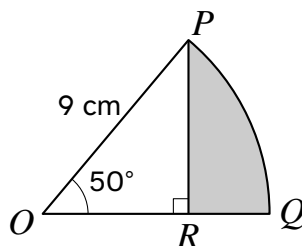


Diagram **NOT** accurately drawn

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

..... cm^2
 (4)

(Total for Question 8 is 4 marks)