

Sector Areas and Arc Lengths

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NAME _____

DATE _____

- 1 Work out the arc length, in metres, of a semicircle of diameter 48 metres.

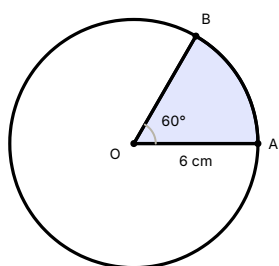
 EITHER PAPER 1 MARK

Circle your answer.

576π 24π 48π 288π

- 2 Here is a sector of a circle with centre O .

 EITHER PAPER 2 MARKS

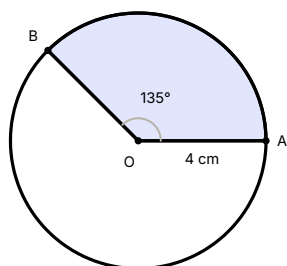


The radius is 6 cm and the angle of the sector is 60° .

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

- 3 The diagram shows a sector of a circle with centre O and radius 4 cm.

 EITHER PAPER 2 MARKS

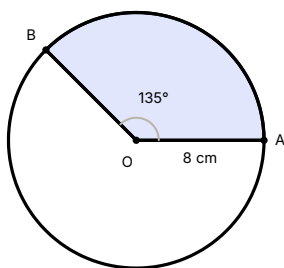


The angle of the sector is 135° .

Find the area of the sector. Give your answer in terms of π .

- 4 (a) The shaded sector AOB has an angle of 135° .

EITHER PAPER 3 MARKS

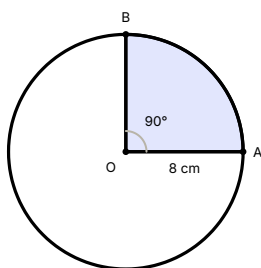


Write down the size of the reflex angle AOB .

- (b) Find the area of the **unshaded** part of the circle. Give your answer in terms of π .

- 5 The diagram shows a sector AOB of a circle with centre O .

EITHER PAPER 3 MARKS

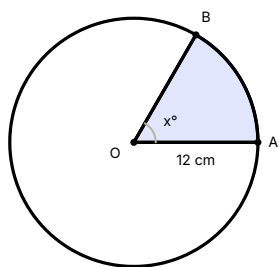


$OA = OB = 8\text{ cm}$ and angle $AOB = 90^\circ$.

Find the perimeter of the sector. Give your answer in terms of π .

- 6 The diagram shows a sector of a circle with centre O and radius 12 cm.

EITHER PAPER 3 MARKS



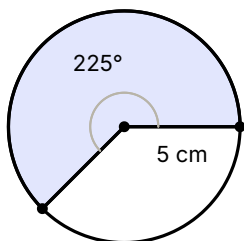
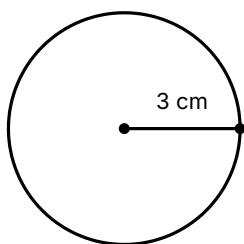
The length of the arc AB is 4π cm.

Calculate the size of the angle marked x .

- 7 Shape A is a circle with radius 3 cm.

EITHER PAPER 5 MARKS

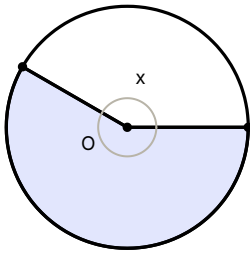
Shape B is a sector of a circle with radius 5 cm.



The shapes are not drawn accurately.

Which shape has the greater area, A or B?

You must show your working.



The shaded part of the circle is the part of the circle outside angle x . The diagram is not accurately drawn.

(a) The circle has a circumference of 11π cm.

Assume that angle x is 120° .

Find the shaded area. Give your answer as a decimal, correct to 2 decimal places.

(b) In fact, angle

is $\overset{x}{120^\circ}$

larger
than

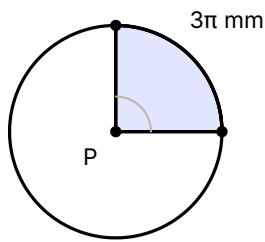
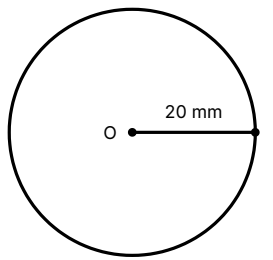
. **one**

What
does
this
mean
about
the
shaded
area?

Tick

- box.
- ☐ It is smaller than the answer to part (a)
 - ☐ It is the same as the answer to part (a)
 - ☐ It is larger than the answer to part (a)
 - ☐ It could be any of the above
-

The shapes are a circle with radius 20 mm and a quarter circle. The quarter circle is the shaded part of circle P in the second diagram, and the rest of circle P is not wire. The wire for the quarter circle runs along its arc and along both of its straight edges.



The diagrams are not drawn accurately.

The arc of the quarter circle has length 3π mm.

- (a) Show that the radius of the quarter circle is 6 mm.
- (b) Work out the total length of wire used for the hanging decoration.

Write your answer as an exact length in the form $a\pi + b$, with a and b whole numbers.

10 OAB is a sector of a circle with centre O and radius 6 cm.

EITHER PAPER 4 MARKS

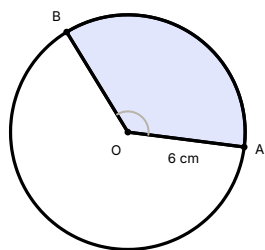


Diagram NOT accurately drawn

The area of the sector is 39.4 cm^2 .

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

1	24π metres	2	2π cm
3	6π cm ²	4	(a) 225° (b) 40π cm ²
5	$(4\pi + 16)$ cm	6	60°
7	B: 15.625π cm ² $>$ 9π cm ²	8	(a) 63.36 cm ² (b) It is smaller than the answer to part (a)
9	(a) $r = 6$ mm (b) $(43\pi + 12)$ mm	10	25.1 cm