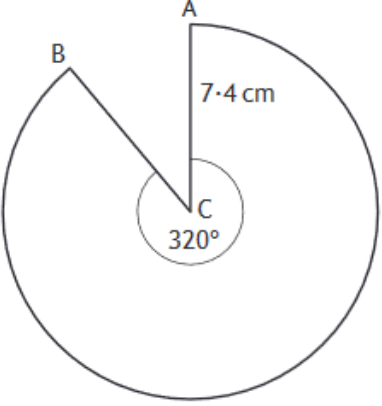


S3 Revision - Arcs and Sectors of a circle

1



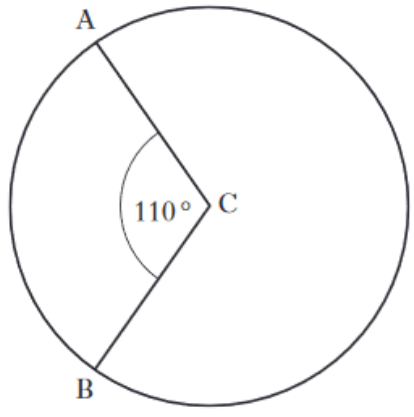
The diagram shows a sector of a circle with a centre C.

The radius of the circle is 7.4 centimetres.

Calculate the length of arc AB.

3

2



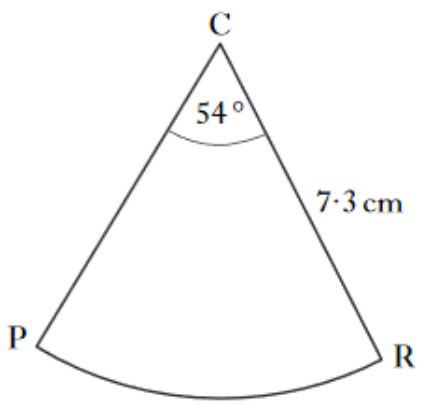
The diagram shows a sector of a circle with a centre C.

The radius of the circle is 6.5 centimetres.

Calculate the area of the minor sector ACB.

3

3

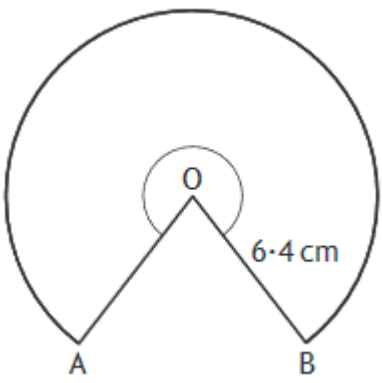
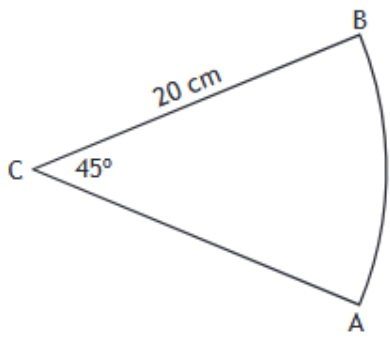
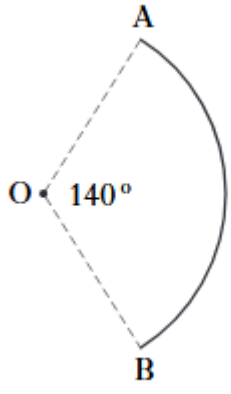


The diagram shows a sector of a circle with a centre C.

The radius of the circle is 7.3 centimetres and angle PCR is 54°

Calculate the length of the arc PR.

3

4		<p>The diagram shows part of a circle with centre O.</p> <p>The radius of the circle is 6.4 centimetres. The centre angle ACB is 280°</p> <p>Calculate the area of sector AOB.</p>	3
5		<p>The diagram shows a sector of a circle with a centre C.</p> <p>The radius of the circle is 20 centimetres. The centre angle ACB is 45°</p> <p>Without a calculator find the length of arc AB. Use $\pi = 3.14$.</p>	3
6	<p>The diagram shows a sector of a circle with a centre O.</p> <p>The centre angle is 140° . Arc AB has a length of 73 cm</p> <p>Find the size of the radius OA.</p>		4
19 marks			

Arcs and Sectors – Answers		19
1	Mark 1 State the fraction of the circle Mark 2 Substitute into arc length formula Mark 3 Calculate length of arc AB 2 marks will be given for finding the area of the sector	$\frac{320}{360}$ $\frac{320}{360} \times \pi \times 2 \times 7.4$ $\mathbf{41.3\ cm}$ $\frac{320}{360} \times \pi \times 7.4^2 = 152.9\ cm^2$
2	Mark 1 State the fraction of the circle Mark 2 Substitute into area formula Mark 3 Calculate area of sector ACB 2 marks will be given for finding the arc length	$\frac{110}{360}$ $\frac{110}{360} \times \pi \times 6.5^2$ $\mathbf{40.6\ cm^2}$ $\frac{110}{360} \times \pi \times 13 = 12.5\ cm$
3	Mark 1 State the fraction of the circle Mark 2 Substitute into arc length formula Mark 3 Calculate the length of arc PR 2 marks will be given for finding the area of the sector	$\frac{54}{360}$ $\frac{54}{360} \times \pi \times 2 \times 7.3$ $\mathbf{6.88\ cm}$ $\frac{54}{360} \times \pi \times 7.3^2 = 25.11\ cm^2$
4	Mark 1 State the fraction of the circle Mark 2 Substitute into area formula Mark 3 Calculate area of sector AOB 2 marks will be given for finding the length of arc AB	$\frac{280}{360}$ $\frac{280}{360} \times \pi \times 6.4^2$ $\mathbf{100\ cm^2}$ $\frac{280}{360} \times \pi \times 12.8 = 31.3\ cm$
5	Mark 1 State the fraction of the circle and simplify Mark 2 Substitute into arc length formula Mark 3 Calculate the length of arc AB 2 marks will be given for finding the area of the sector	$\frac{45}{360} = \frac{1}{8}$ $\frac{1}{8} \times 3.14 \times 2 \times 20$ $5 \times 3.14 = \mathbf{15.7\ cm}$ $\frac{1}{8} \times 3.14 \times 20^2 = 157\ cm^2$
6	Mark 1 State the fraction of the circle Mark 2 Make an equation with fraction and arc length Mark 3 Calculate the length of the diameter Mark 4 Calculate the length of the radius 3 marks will be given if sector area is used	$\frac{140}{360}$ $73 = \frac{140}{360} \times \pi \times D$ $D = 73 \times 360 \div 140\pi = 60\ cm$ $\mathbf{\text{radius is } 30\ cm}$ $73 = \frac{140}{360} \times \pi \times r^2, r^2 = 60, r = \mathbf{7.7\ cm}$