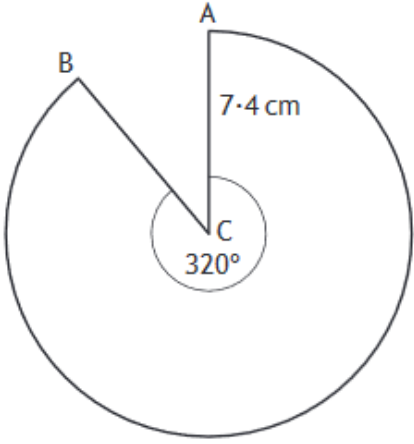
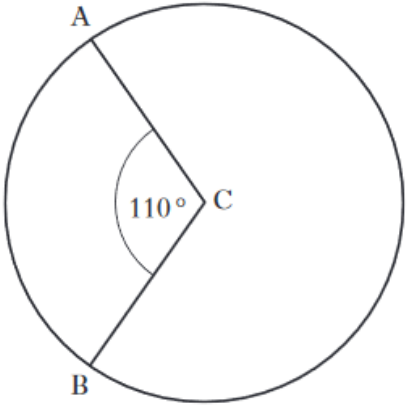
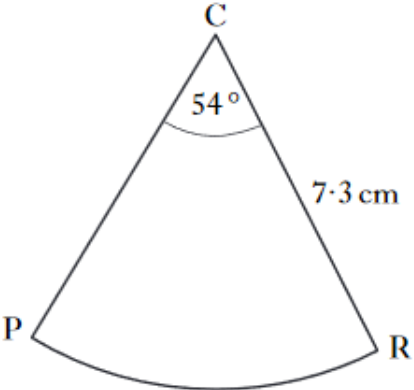
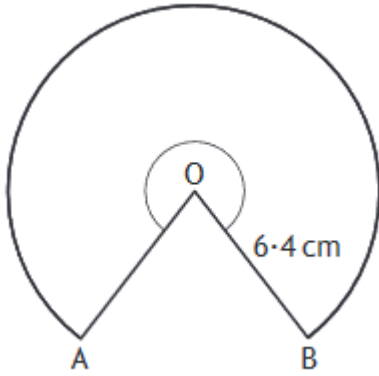


Arcs and Sectors of a circle		
1		<p>The diagram shows a sector of a circle with a centre C.</p> <p>The radius of the circle is 7.4 centimetres.</p> <p>Calculate the length of the major arc AB.</p>
2		<p>The diagram shows a sector of a circle with a centre C.</p> <p>The radius of the circle is 6.5 centimetres.</p> <p>Calculate the area of the minor sector ACB.</p>
3		<p>The diagram shows a sector of a circle with a centre C.</p> <p>The radius of the circle is 7.3 centimetres and angle PCR is <math>54^\circ</math></p> <p>Calculate the length of the arc PR.</p>

4



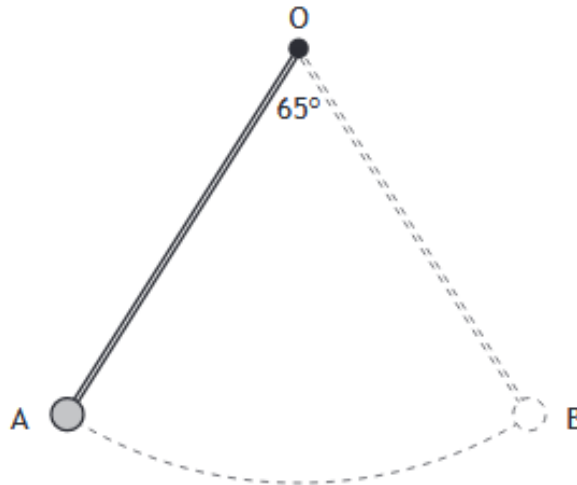
The diagram shows part of a circle with centre O.

The radius of the circle is 6.4 centimetres.  
The centre angle ACB is  $280^\circ$

Calculate the area of sector AOB.

3

The pendulum of a clock swings along an arc of a circle, centre O.



The pendulum swings through an angle of  $65^\circ$ , travelling from A to B.

The length of the arc AB is 22.7 centimetres.

Calculate the length of the pendulum.

4

**16 marks**

Arcs and Sectors – Answers		
1	<p>Mark 1 Correct fraction</p> <p>Mark 2 Substitution into arc length formula</p> <p>Mark 3 Calculate length of arc AB</p> <p>2 marks will be given for finding the area of the sector</p> <p>2 marks will be given for finding the <b>smaller arc</b></p>	$\frac{320}{360}$ or equivalent $\frac{320}{360} \times \pi \times 2 \times 7.4$ <b>41.3 cm</b> $\frac{320}{360} \times \pi \times 7.4^2 = 152.9 \text{ cm}^2$ $\frac{40}{360} \times \pi \times 2 \times 7.4 = 5.2 \text{ cm}$
2	<p>Mark 1 Correct fraction</p> <p>Mark 2 Substitution into area formula</p> <p>Mark 3 Calculate area of sector ABC</p> <p>2 marks will be given for finding the arc length</p> <p>2 marks will be given for finding <b>larger area</b></p>	$\frac{110}{360}$ or equivalent $\frac{110}{360} \times \pi \times 6.5^2$ <b>40.6 cm<sup>2</sup></b> $\frac{110}{360} \times \pi \times 13 = 12.5 \text{ cm}$ $\frac{250}{360} \times \pi \times 6.5^2 = 92.2 \text{ cm}^2$
3	<p>Mark 1 Correct fraction</p> <p>Mark 2 Substitution into arc length formula</p> <p>Mark 3 Calculate the length of arc PR</p> <p>2 marks will be given for finding the area of the sector</p> <p>2 marks will be given for finding the <b>larger arc</b></p>	$\frac{54}{360}$ or equivalent $\frac{54}{360} \times \pi \times 2 \times 7.3$ <b>6.88 cm</b> $\frac{54}{360} \times \pi \times 7.3^2 = 25.11 \text{ cm}^2$ $\frac{306}{360} \times \pi \times 3 \times 7.3 = 39 \text{ cm}$
4	<p>Mark 1 Correct fraction</p> <p>Mark 2 Substitution into area formula</p> <p>Mark 3 Calculate area of sector</p> <p>2 marks will be given for finding the length of arc AB</p> <p>2 marks will be given for finding <b>smaller area</b></p>	$\frac{280}{360}$ or equivalent $\frac{280}{360} \times \pi \times 6.4^2$ <b>100 cm<sup>2</sup></b> $\frac{280}{360} \times \pi \times 12.8 = 31.3 \text{ cm}$ $\frac{80}{360} \times \pi \times 6.4^2 = 28.7 \text{ cm}^2$
5	<p>Mark 1 Correct fraction</p> <p>Mark 2 construct the equation</p> <p>Mark 3 know how to solve the equation</p> <p>Mark 4 Solve equation and find the length of the pendulum</p> <p>3 marks will be given for an answer of 40 cm</p> <p>3 marks will be given for assuming that</p>	$\frac{65}{360}$ or equivalent $22.7 = \frac{65}{360} \times \pi \times D$ $\frac{22.7}{\frac{65}{360} \times \pi}$ or similar  <b>D = 40 cm</b> <b>pendulum is 20 cm</b> $\frac{65}{360} \times \pi \times r^2 = 22.7$ , so that $r = 6.33 \text{ cm}$