

ARCS AND SECTORS

1st thing – choose and use the correct formula

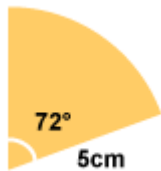
Arc length is $\frac{\theta}{360^\circ} \times \pi \times D$, remember you need the DIAMETER

Area of a sector is $\frac{\theta}{360^\circ} \times \pi \times r^2$, remember to use SQUARE the RADIUS

2nd thing – make a fraction using the angle at the centre of the circle $\frac{40}{360}$, $\frac{170}{360}$ etc

3rd thing – make sure that the formula on your calculator is the same as the formula in your working before your press enter!

Always write your full calculator answer, then round and add units (cm² for area)



$$\text{Arc length} = \frac{72}{360} \times \pi \times 10$$

$$= 6.283185\dots$$

$$= 6.3 \text{ cm}$$

$$\text{Area} = \frac{72}{360} \times \pi \times 5^2$$

$$= 15.707963\dots$$

$$= 15.7 \text{ cm}^2$$

Now try these – find both arc length and sector area

<p>Radius of 7cm</p> <p>41°</p>	<p>Radius of 11.4 cm</p> <p>120°</p>	<p>Radius of 5.1 m</p> <p>60°</p>
<p>57°</p> <p>Radius of 15 cm</p>	<p>150°</p> <p>Radius of 54 cm</p>	<p>36°</p> <p>Radius of 19 m</p>

SOLUTIONS

Arc Length 5 cm Area 17.5 cm ²	Arc Length 23.9 cm Area 136 cm ²	Arc Length 5.3 m Area 13.6 m ²
Arc Length 14.9 cm Area 111.9 cm ²	Arc Length 141.4 cm Area 3817 cm ²	Arc Length 11.9 m Area 113 m ²