

Arc Length & Sector in Degrees (A)



$$\text{Arc length} = \frac{\theta}{360} \times 2\pi r$$

$$\text{Area of sector} = \frac{\theta}{360} \times \pi r^2$$

A sector of a circle has radius 9 cm and central angle 160° . Find the area of the sector in terms of π .

$$\begin{aligned}\text{Area} &= \frac{160}{360} \times \pi (9)^2 \\ &= \frac{4}{9} \times 81\pi \\ &= 36\pi \text{ cm}^2\end{aligned}$$

A sector of a circle has radius 8 cm and central angle 20° . Find the arc length in terms of π .

$$\begin{aligned}\text{Arc length} &= \frac{20}{360} \times 2\pi (8) \\ &= \frac{1}{18} \times 16\pi \\ &= \frac{8}{9} \pi \text{ cm}\end{aligned}$$