

Year 2 Pure Chapter 5 - Radians

Calculator Mode

Make sure your calculator is in radian mode.

Measurements

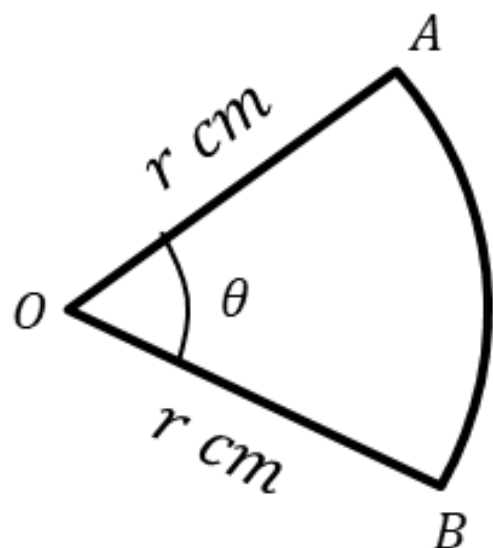
$$2\pi = 360^\circ$$

$$\pi = 180^\circ$$

$$\frac{\pi}{2} = 90^\circ$$

Arcs

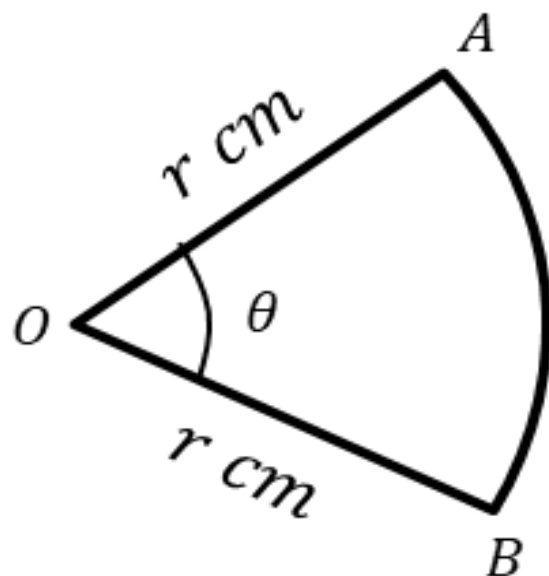
IF θ is in radians then



$$AB = r\theta$$

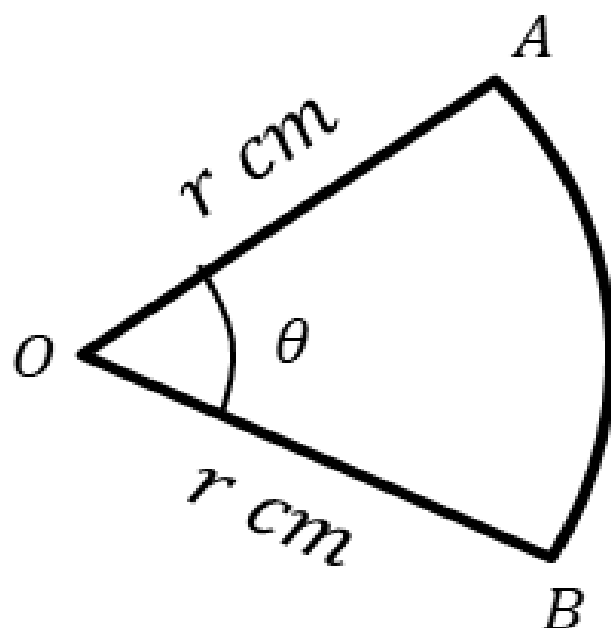
Area of a Sector

IF θ is in radians then



$$\text{Area} = \frac{1}{2} r^2 \theta$$

Area of a Triangle



$$\text{Area} = \frac{1}{2} r^2 \sin \theta$$

Small Angle

Approximations

(Given in the formula booklet)

$$\sin \theta \approx \theta$$

$$\tan \theta \approx \theta$$

$$\cos \theta \approx 1 - \frac{\theta^2}{2}$$

Trig Equations + Radians

Solving $\sin \theta$

1st solution: $\sin^{-1}$

2nd solution: $\pi - 1^{\text{st}} \text{ solution}$

All other solution: $\pm 2\pi$

Solving $\cos \theta$

1st solution: $\cos^{-1}$

2nd solution: $2\pi - 1^{\text{st}} \text{ solution}$

All other solution: $\pm 2\pi$

Solving $\tan \theta$

1st solution: $\tan^{-1}$

All other solution: $\pm \pi$