CHEAT SHEET

Radians

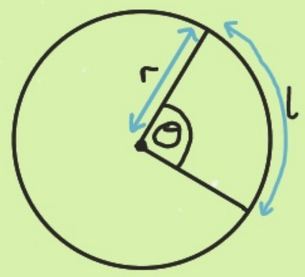
Key Formulae

FB formula booklet

Arcs, Sectors & Segments

- $l = r\theta$

  l: arc length; r: radius; θ: angle (in radians)

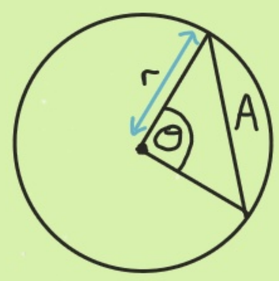


- $A = \frac{1}{2}r^2\theta$

  A: sector area; r: radius; θ: angle (in radians)

- $A = \frac{1}{2}r^2(\theta - \sin\theta)$

  A: segment area; r: radius; θ: angle (in radians)



Small Angle Approximations

- $\tan\theta \approx \theta$ FB
- $\sin\theta \approx \theta$ FB

These approximations are only valid when θ is small & measured in radians.

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

Key Concepts

Definition of a Radian

1 radian is the angle subtended at the centre of a circle by an arc whose length is equal to the radius of the circle.

Conversions

- 360 is equivalent to 2π radians.
- radians $\xrightarrow{\times \frac{180}{\pi}}$ degrees

  degrees $\xrightarrow{\times \frac{\pi}{180}}$ radians