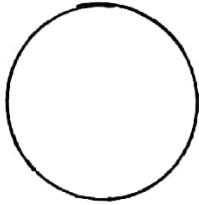


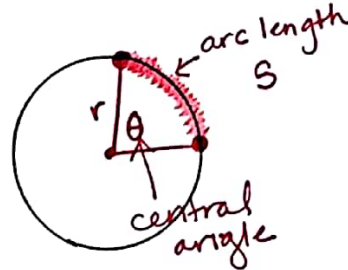
November 14

Arc Length and Area of Sectors

circumference
of a circle: $C = 2\pi r$



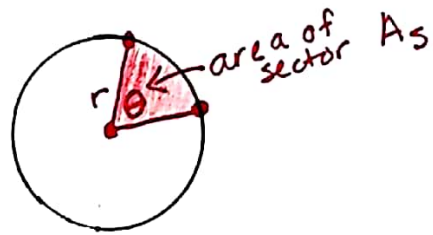
arc length of
a sector: $S = \frac{\theta}{360} \cdot 2\pi r$



area of a
circle: $A = \pi r^2$



area of
a sector: $A_s = \frac{\theta}{360} \cdot \pi r^2$



Ex1 Given a radius of $\frac{r}{3\text{ft}}$ and a central angle of $\theta 95^\circ$, find arc length.

$$S = \frac{\theta}{360} \cdot 2\pi r$$

$$S = \frac{95}{360} \cdot 2 \cdot \pi \cdot 3$$

$$S = 4.97 \text{ ft}$$

Ex2 Find area of sector.

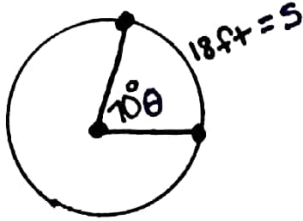


$$A_s = \frac{\theta}{360} \cdot \pi r^2$$

$$A_s = \frac{200}{360} \cdot \pi \cdot 6^2$$

$$A_s = 62.83 \text{ cm}^2$$

Ex 3 Find the radius.



$$s = \frac{\theta}{360} \cdot 2\pi r$$

$$18 = \frac{10}{360} \cdot 2 \cdot \pi \cdot r$$

$$\frac{18}{1.22} = \frac{1.22 \cdot r}{1.22}$$

$$\boxed{14.73 \text{ ft} = r}$$

Ex 4 Given area of a sector is 8π in² and a radius of 5 in, find the central angle.

$$A_s = \frac{\theta}{360} \cdot \pi r^2$$

$$8\pi = \frac{\theta}{360} \cdot \pi \cdot 5^2$$

$$\frac{25.13}{78.54} = \frac{\theta}{360} \cdot \frac{78.54}{78.54}$$

$$360 \cdot .32 = \frac{\theta}{360} \cdot 360$$

$$\boxed{115.2^\circ = \theta}$$