

10.1 Arc Length + Sector Area

Minor arc ($< 180^\circ$) \widehat{AB}

Major arc ($> 180^\circ$) \widehat{ADB}

Diameter

Radius

θ - theta
- angles

Central angle ($^\circ$)

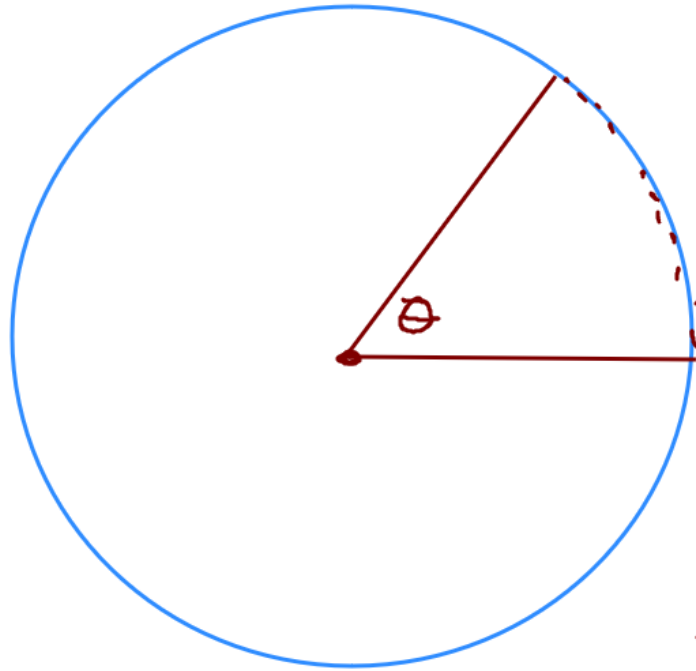
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Arc measure ($^\circ$)

arc length : cm, m, ft



$$C = 2\pi r$$

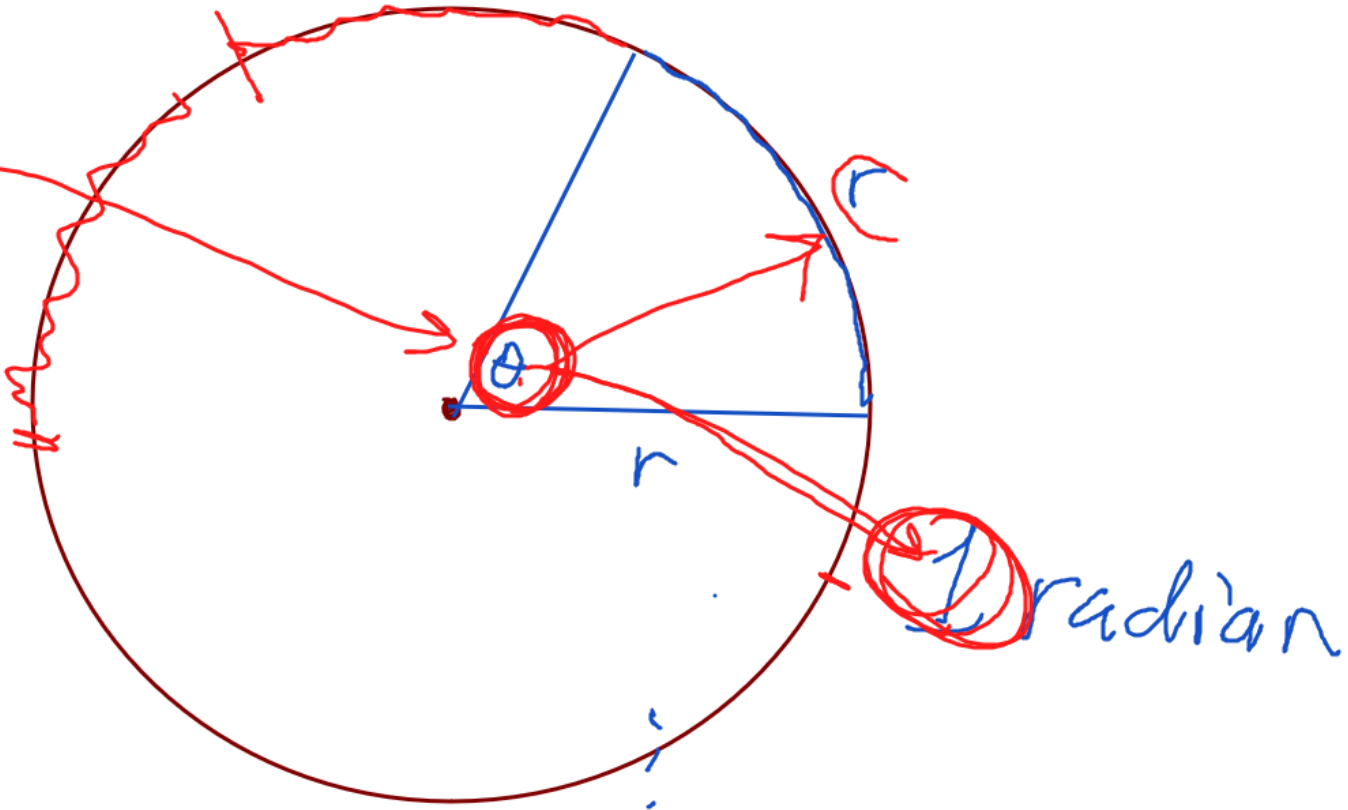


$$s = \frac{\theta}{360} \cdot 2\pi r$$

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

Degrees 360°
↕
Radian 2π

$$C = 2\pi(r)$$



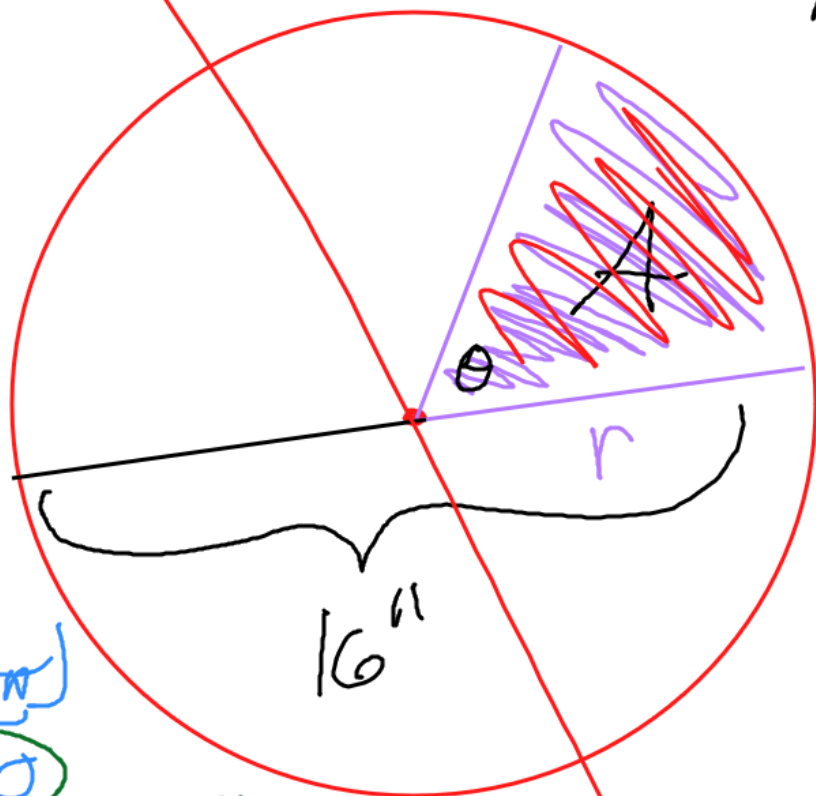
$$A = \pi r^2 = \pi(8^2) = 64\pi \text{ in}^2$$

$$16'' = d.o$$

$$r = 8 \text{ in}$$

8 pieces

$$\frac{\frac{1}{8} \cdot 64\pi}{360} = \frac{A}{64\pi}$$



$$\frac{360}{8} = \frac{180}{4} = \frac{90}{2} = 45^\circ$$

$$A = \frac{\theta(\pi r^2)}{360} = \frac{45(64\pi)}{360}$$

$$\frac{1}{8} \cdot \frac{64\pi}{1} = 8\pi$$

$$8\pi \text{ in}^2 = 25.13 \text{ in}^2$$

$$\frac{25\pi}{360} = \frac{A}{\pi(5^2)} \cdot 25\pi$$

$$A = \frac{115(25\pi)}{360}$$

$$= \frac{2875}{360} \pi = \frac{575\pi}{72} \approx 25.09$$

