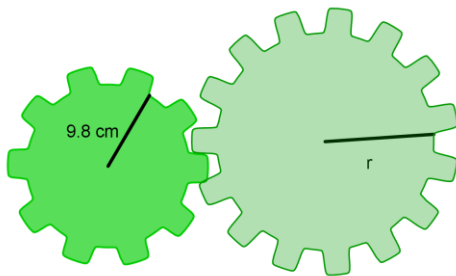


1. A circle has radius 7.64 ft. Find the length of the arc intercepted by a central angle of measure 235° .

$$\begin{aligned}
 s &= \theta r \\
 &= \left(\frac{235^\circ}{1} \times \frac{\pi}{180^\circ} \right) (7.64) \\
 &\approx \boxed{31.3 \text{ ft}}
 \end{aligned}$$

2. Find the radius of the larger wheel in the figure if the smaller wheel rotates 50.0° when the larger wheel rotates 30.0° .



$$\begin{aligned}
 \text{Small: } s &= \theta r \\
 &= \left(\frac{50.0^\circ}{1} \times \frac{\pi}{180^\circ} \right) (9.8) \\
 &= \frac{49\pi}{18}
 \end{aligned}$$

$$\begin{aligned}
 \text{Large: } s &= \theta r \\
 r &= \frac{s}{\theta} = \frac{\left(\frac{49\pi}{18} \right)}{\left(\frac{\pi}{6} \right)} = \frac{49\cancel{\pi}}{18} \cdot \frac{6}{\cancel{\pi}} = \frac{49}{3} \\
 &= 16\frac{1}{3} \text{ cm} \\
 &\approx \boxed{16 \text{ cm}}
 \end{aligned}$$

↖ 2 sig figs because of 9.8 cm

3. Find the area of a sector of a circle having radius $r = 59.8 \text{ km}$ and central angle $\theta = 125^\circ$.

$$\begin{aligned}
 A &= \frac{1}{2} r^2 \theta \\
 &= \frac{1}{2} (59.8)^2 \left(\frac{125^\circ}{1} \times \frac{\pi}{180^\circ} \right) \\
 &\approx \boxed{3900 \text{ km}^2} \quad (\text{or } 3.90 \times 10^3 \text{ km}^2 \text{ to show sig figs})
 \end{aligned}$$

Q: What goes around the world but stays in a corner?