Conditions

Find the radius of the circle with arc length 8 feet and a central angle of 2 radians. Be sure to use the correct unit of measure

Solution

The formula of the length of an arc with radius r and angle a in degrees:

$$L = 2\pi r\frac{\alpha}{360}$$

As $\alpha = 2rad$ then it is $2 \cdot \frac{180}{\pi}$

$$L = 2\pi r\frac{\alpha}{360} = 2\pi r\frac{\frac{360}{\pi}}{360} = 8$$

$$2\pi r\frac{\frac{360}{\pi}}{360} = 2r = 8; r = 4$$

Answer: 4