## Answer on Question #77227 – Math – Geometry

## Question

For the circle of radius 9 feet, find the arc length *s* cut off by a central angle of 6 degrees.

## Solution



Let *s* represent the arc length,  $\theta$  represent the central angle in radians and *r* be the radius of the circle. Then a central angle of  $\theta$  radians in a circle of radius *r* subtends an arc of length

We must express 6° in radians

$$\begin{array}{rrr} 180^{\circ} - \pi \, rad \\ 6^{\circ} & - \theta \, rad \end{array}$$

 $s = r\theta$ .

Then

$$\theta = \frac{6}{180} \cdot \pi = \frac{\pi}{30}$$

The arc length *s* cut off by a central angle of 6 degrees

$$s = 9 ft \left(\frac{\pi}{30}\right) = \frac{3\pi}{10} ft$$

**Answer**:  $s = \frac{3\pi}{10} ft$ .