

Your turn:

Convert  $315^\circ$  to radians.

$$\begin{array}{r} 7\cancel{10}3 \\ 315 \cancel{(\pi)} \\ \hline 4 \cancel{36} \cancel{180} \\ \hline 7\pi \\ \hline 4 \end{array}$$

Convert  $\frac{5\pi}{4}$  to degrees.

$$\begin{array}{r} 5\pi \cancel{(\pi)} \\ \hline 4 \cancel{(\pi)} \\ \hline 225^\circ \end{array}$$
$$\begin{array}{r} 45 \\ \hline 4 \sqrt{180} \\ \hline 16 \\ \hline 20 \\ \hline 45 \\ \hline 225 \end{array}$$

An arc with a measure of  $120^\circ$  has an arc length of  $10\pi$  inches.  
What is the radius of the circle on which the arc sits?

$$\frac{10\pi}{d\pi} = \frac{\cancel{120}}{\cancel{360}}$$
$$\frac{10}{d} = \frac{1}{3} \quad 30 = d$$
$$\boxed{r = 15}$$

An arc has a length of  $4\pi$  units and a radius of 6 units. What is the angle of the sector in radians?



$$\frac{4\pi}{3 + 2\pi} = \frac{x}{360}$$

$$\frac{2}{120\pi} = \frac{x}{3180}$$

$$\frac{1}{3} = \frac{x}{360}$$

$$\frac{2\pi}{3}$$

$$\frac{3x}{3} = \frac{360}{3} \quad x = 120^\circ$$

Suppose a circle with an 11.4 inch arc intercepted by the central angle and a radius that is 3 inches long. Determine the measure of the central angle in radians.

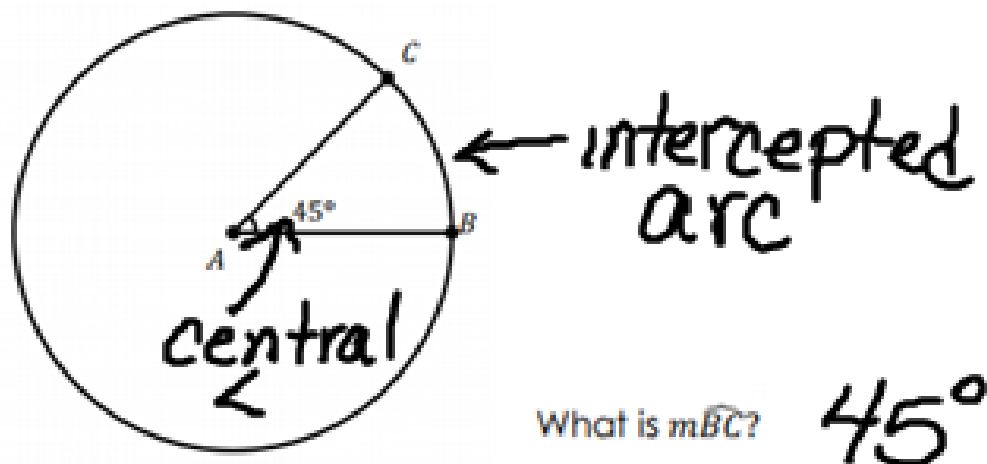
$$\frac{11.4}{6\pi} = \frac{x}{360}$$

$$x = \frac{217.7\pi}{180}$$

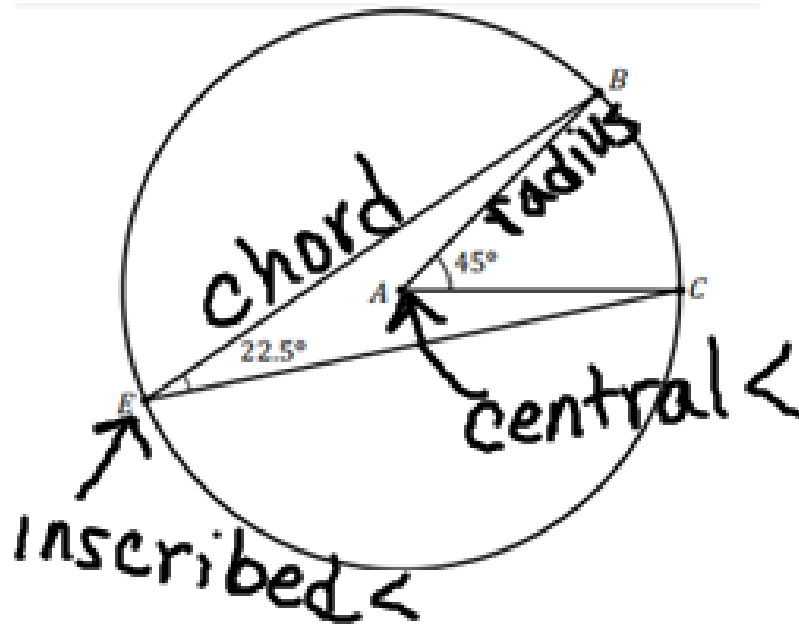
$$\frac{4.104}{18.8496} = \frac{18.8496x}{18.8496}$$

$$x = 1.2\pi$$

The measure of an arc on a circle is equal to the degree measure of the central  $\angle$  that intercepts the arc.



Consider the figure below.  $\angle E$  is an inscribed angle angle.  $\widehat{BC}$  is an intercepted arc by both the central angle  $\angle A$  and the inscribed angle.



Define the inscribed angle.  
$$\text{inscribed } \angle = \frac{1}{2} \text{ the central } \angle$$