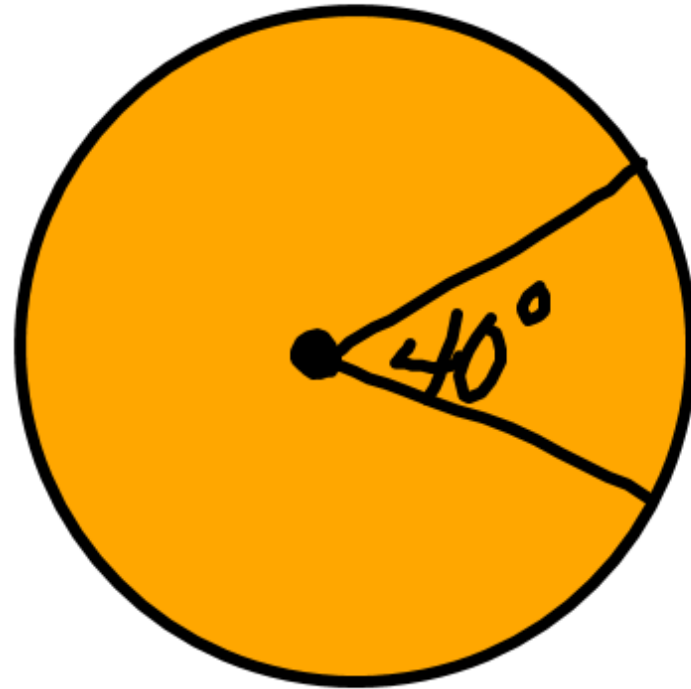


# 10-2 Measuring Angles & Arcs

Central Angle: An angle  
from the center of a  
Circle



Example 1:

$$25x + 3x + 2x = 180$$

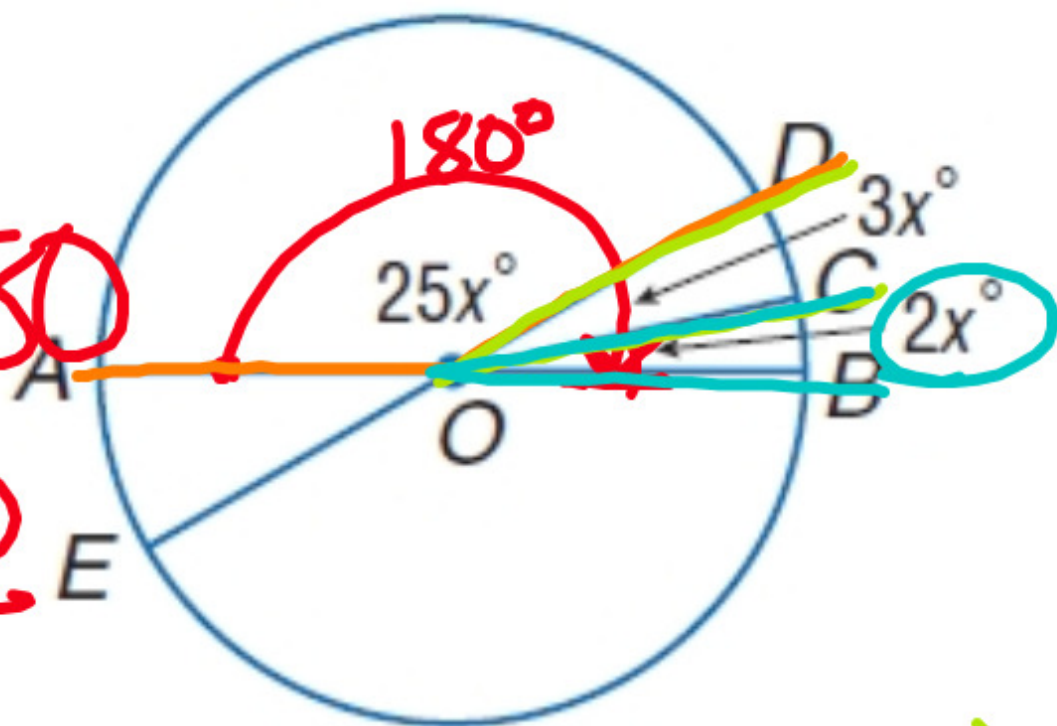
$$\frac{30x}{30} = \frac{180}{30}$$

$$x = 6$$

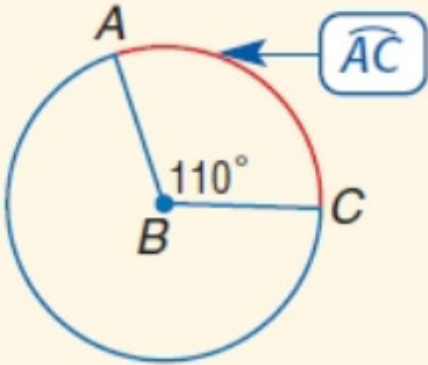
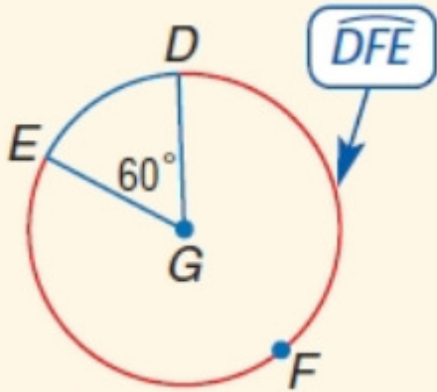
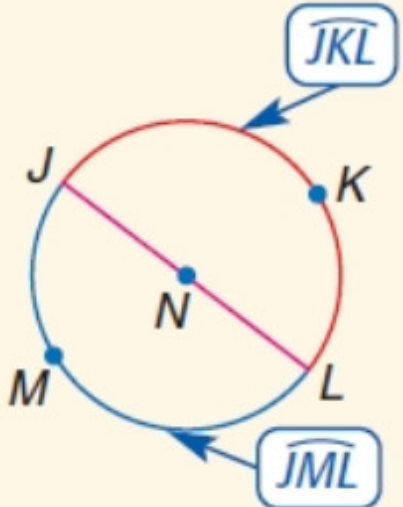
$$m\angle AOD = 25(6) = 150^\circ$$

$$m\angle DOC = 3(6) = 18^\circ$$

$$m\angle COB = 2(6) = 12^\circ$$



# Look at the chart on page 564

KEY CONCEPT			Arcs of a Circle
Type of Arc:	minor arc	major arc	semicircle
Definition:	an arc that measures less than $180^\circ$	an arc that measures greater than $180^\circ$	an arc that measures $180^\circ$
Example:			

# Look at the chart on page 564

KEY CONCEPT			<i>Arcs of a Circle</i>
Type of Arc:	minor arc	major arc	semicircle
Named:	usually by the letters of the two endpoints $\widehat{AC}$	by the letters of the two endpoints and another point on the arc $\widehat{DFE}$	by the letters of the two endpoints and another point on the arc $m\widehat{JML}$ and $\widehat{JKL}$
Arc Degree Measure Equals:	the measure of the central angle  $m\angle ABC = 110$ , so $m\widehat{AC} = 110$	360 minus the measure of the minor arc with the same endpoints $m\widehat{DFE} = 360 - m\widehat{DE}$ $m\widehat{DFE} = 360 - 60$ or 300	$360 \div 2$ or 180  $m\widehat{JML} = 180$ $m\widehat{JKL} = 180$

Measure of an arc:

The central angle  
and its arc have the  
same degree measure

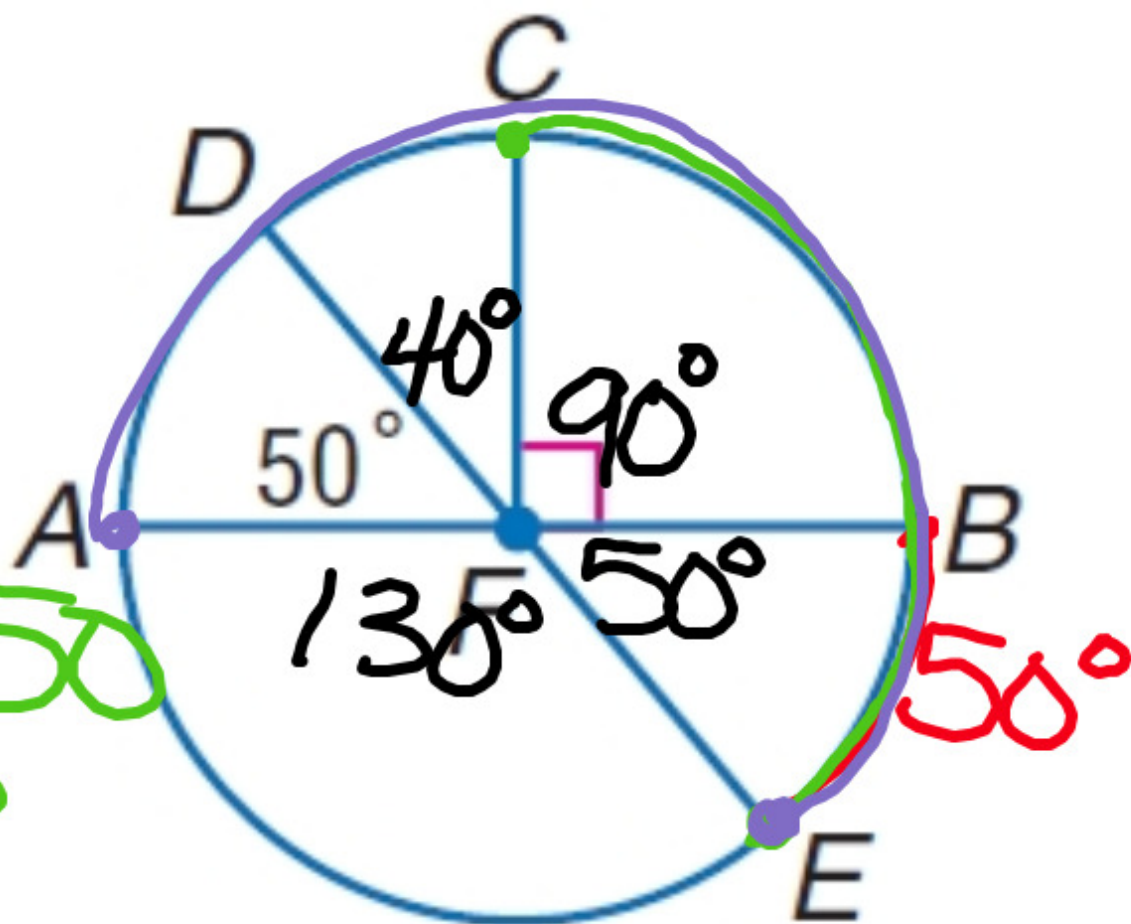


Example 2:

$$m\widehat{BE} = 50^\circ$$

$$\begin{aligned} m\widehat{CBE} &= 90 + 50 \\ &= 140^\circ \end{aligned}$$

$$\begin{aligned} m\widehat{ACE} &= 50 + 40 + 90 + 50 \\ &= 230^\circ \end{aligned}$$



# 10-2 Arcs & Angles continued



Arc length:  
(distance)

$$\frac{A}{360} = \frac{\ell}{2\pi r}$$

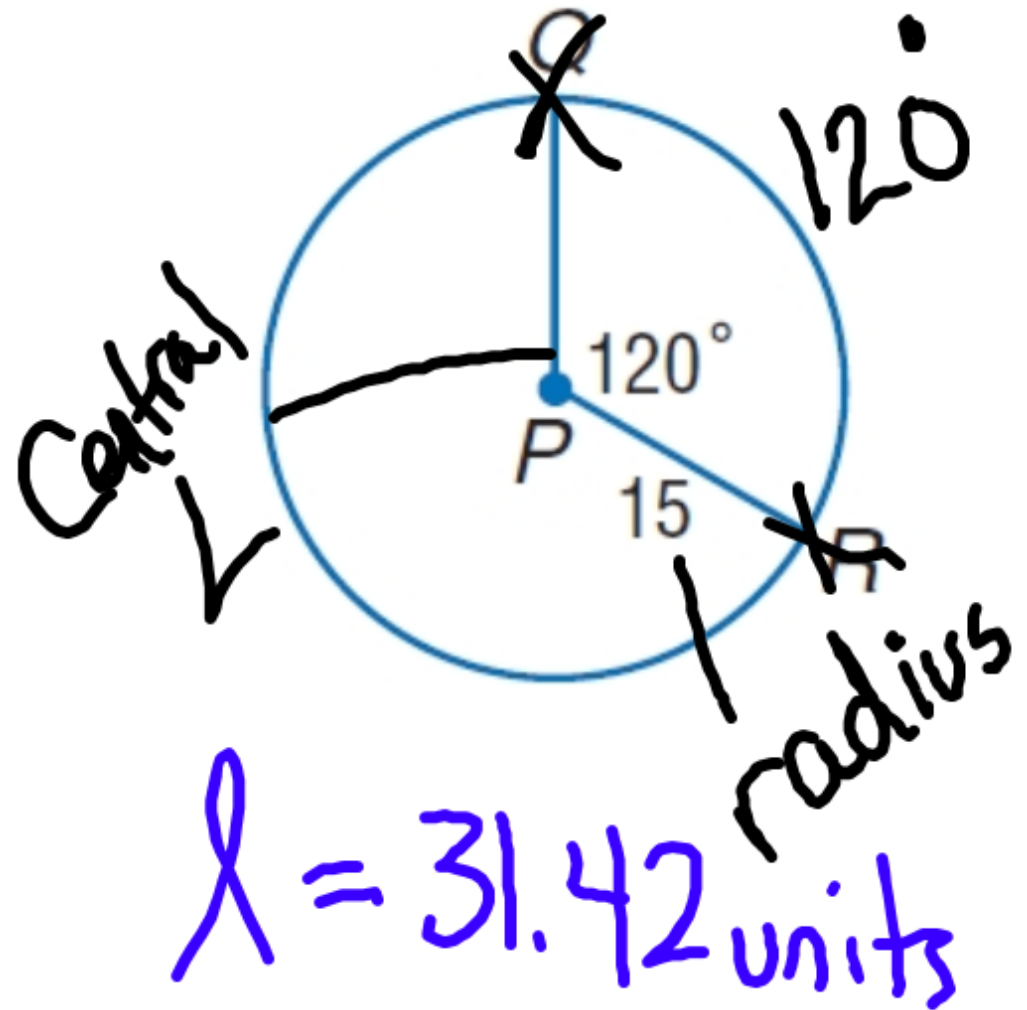
degree measure of arc  $\rightarrow$   $\frac{A}{360} = \frac{\ell}{2\pi r}$   $\leftarrow$  arc length  
degree measure of whole circle  $\rightarrow$   $\frac{A}{360} = \frac{\ell}{2\pi r}$   $\leftarrow$  circumference

Example 3:

$$\frac{A}{360} = \frac{l}{2\pi r}$$

$$\frac{120}{360} = \frac{l}{94.25}$$

$$\frac{11,310}{360} = \frac{360(l)}{360}$$



$$l = 31.42 \text{ units}$$