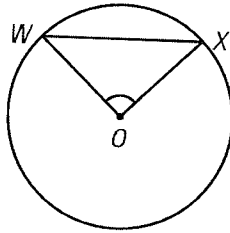
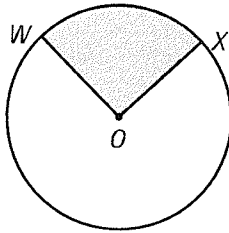


10-1 Reteach to Build Understanding

Arcs and Sectors

1. The length of an arc and the area of a sector are fractions of the circumference and the area of the circle, respectively, based on the central angle measure. Select the formulas you would use to answer the questions.

Formulas	$s = \frac{n}{360} \cdot 2\pi r$	$C = 2\pi r$	$A = \frac{n}{360} \cdot \pi r^2$	$A = \pi r^2$
Find arc length WX given $m\angle WOX = 65^\circ$ and radius is 3 ft.			Find the area of the shaded sector given $m\angle WOX = 65^\circ$ and radius is 3 ft.	
			$s = \frac{n}{360} \cdot 2\pi r$	

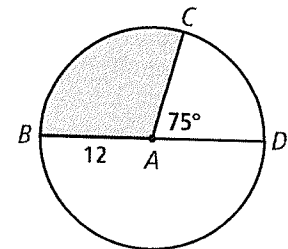
2. The radius of a circle is 5 in. and the central angle measure of an arc is $\frac{\pi}{5}$ radians. Ashton finds the length of an arc in inches as shown. What is his error? What is the correct arc length expressed in terms of π ?
 Sample: Ashton used the arc length formula for degrees instead of the formula for radians, $s = \theta r$, so the correct answer is π in.

$$\begin{aligned} s &= \frac{n}{360} (2\pi r) \\ &= \frac{\pi}{360} (2\pi(5)) \\ &= \frac{\pi^2}{180} \end{aligned}$$

3. Find the length of BC and the area of the shaded region.

First, find n° , the measure of the central angle of BC . This is also central angle measure of the sector.

$$\begin{aligned} n^\circ &= 180^\circ - 75^\circ \\ &= 105^\circ \end{aligned}$$



Use the arc length formula.

$$\begin{aligned} s &= \frac{n}{360} \cdot 2\pi r \\ &= \frac{105}{360} \cdot 2\pi(12) \\ &= 7\pi \end{aligned}$$

Use the area formula for a sector.

$$\begin{aligned} A &= \frac{n}{360} \cdot \pi r^2 \\ &= \frac{105}{360} \cdot \pi(12)^2 \\ &= 42\pi \end{aligned}$$



10-1 Additional Practice

Arcs and Sectors

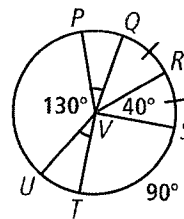
Use $\odot V$ to find each arc measure.

1. \widehat{QR} 40°

2. \widehat{PQ} 30°

3. \widehat{STU} 120°

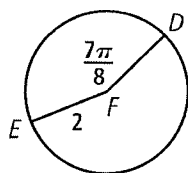
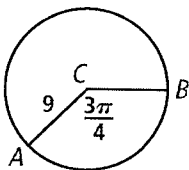
4. \widehat{PSU} 230°



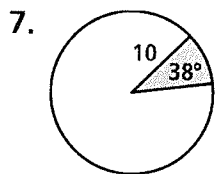
Find each arc length. Express each answer in terms of π .

5. length of \widehat{AB} $\frac{27\pi}{4}$

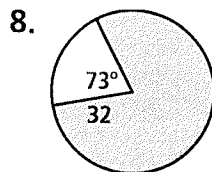
6. length of \widehat{DE} $\frac{7\pi}{4}$



Find the area of the shaded sector. Round to the nearest tenth.

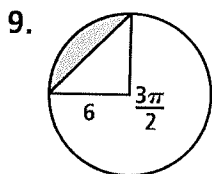
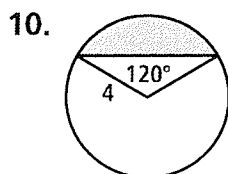


33.2



2564.7

Find the area of the shaded segment. Round to the nearest tenth.

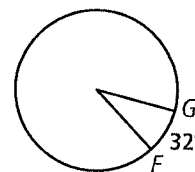
 $9\pi - 18$  $\frac{16\pi}{3} - 4\sqrt{3}$

11. The length of \widehat{GF} is 4 m. What is the radius of the circle?

Round to the nearest tenth.

7.2 m

12. What is the area of the sector bounded by \widehat{GF} ? Round to the nearest tenth.

14.3 m²

13. If an arc with measure 60° has length 5π on a circle with radius r , what is the length of a 60° arc on a circle with radius $2r$? Explain.

10π ; Sample: The length of an arc is proportional to the radius of the circle.

14. A pizza with radius 7 in. is cut into 12 equal-sized pieces. What is the area of each piece? Round to the nearest hundredth of an inch.

12.83 in.²