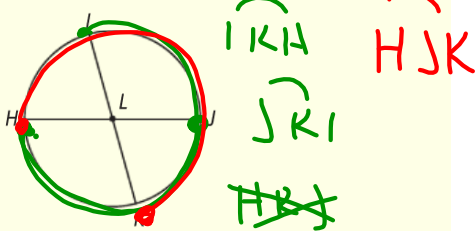


Warm Up:

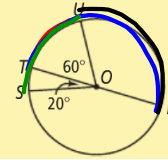
1. Use the circle below for Questions 1-2.

- a. What are the minor arcs of $\odot L$?
- b. What are the semicircles of $\odot L$?
- c. What are the major arcs of $\odot L$ that contain point K?



2. What is the measure of each arc in $\odot O$?

- A. arc ~~TOU~~ TU 60
- B. arc TUR 180
- C. arc STU 80
- D. arc ~~ROU~~ RU 180 - 60 = 120



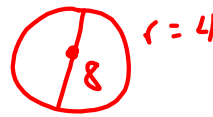
3. Find the area of a circle with a diameter of 8ft.

Leave your answer in terms of pi.

$$A = \pi r^2$$

$$A = \pi 4^2$$

$$16\pi$$



Learning Goal: Today I will learn how to find the length of an arc and the area of a sector.

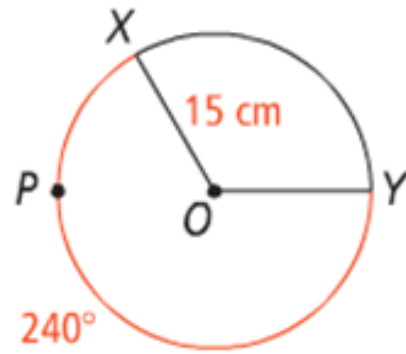
Success Criteria: I am able to calculate the length of an arc and the sector area.

10-7 ~~Area of Circles and~~
~~Sectors~~

Arc length and
Area of Sector

*Arc Length

A piece of a circle's circumference.

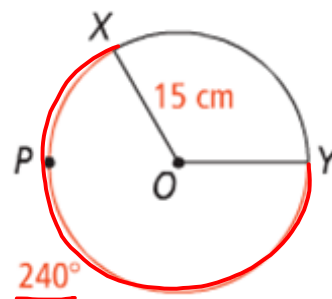


*Arc Length

yellow sheet

The length of an arc of a circle is the **product** of the ratio $\frac{\text{measure of the arc}}{360}$ and the **circumference** of the circle.

$$\begin{aligned} \text{length of } \widehat{AB} &= \frac{m\widehat{AB}}{360} \cdot 2\pi r \\ &= \frac{m\widehat{AB}}{360} \cdot \pi d \end{aligned}$$

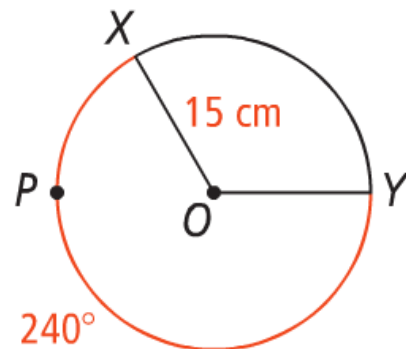
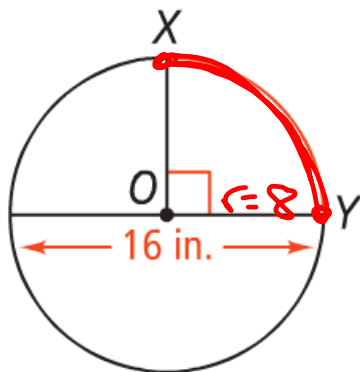


Find the length of XPY. Leave yur answer in pi

$$\begin{aligned} &\left(\frac{240^\circ}{360}\right) \cdot 2\pi 15 \\ &= (.67) 30\pi \\ &= 20\pi \end{aligned}$$

Arc Length

Find the arc length in red. Leave your answer in pi



$$\frac{90}{360} \cdot 2\pi \cdot 8$$

$$(\textcircled{4\pi}) \quad (.25)16\pi$$

Congruent arcs

Arcs that have the **same** measure and are in the **same** circle or in **congruent** circles.

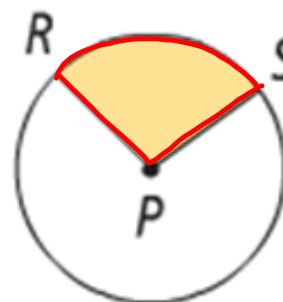


Have the same length and measure. (Circles must be congruent)

*Sector of a Circle

It is bounded by an **arc** of the circle and the **2 radii** to the arc's endpoints.

Slice of pizza



Sector RPS

*Area of a Sector

green sheet

The area of a sector of a circle is the **product** of the ratio $\frac{\text{measure of the arc}}{360}$ and the **area** of the **circle**.

$$\text{Area of sector } AOB = \frac{\widehat{mAB}}{360} \cdot \pi r^2$$

Area of Circles and Sectors

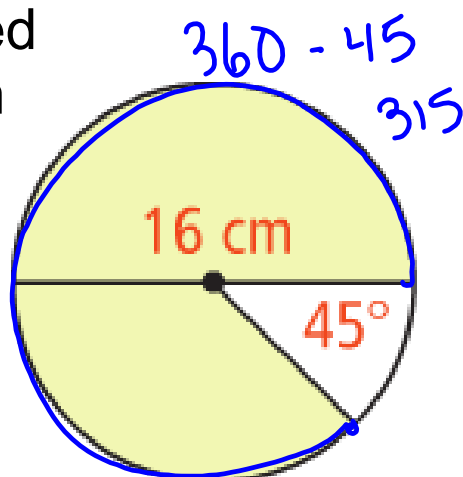
What is the area of the shaded sector? Leave your answer in terms of pi.

$$A = \frac{\text{angle}}{360} \cdot \pi r^2$$

$$\left(\frac{315}{360} \right) \pi 8^2$$

$$.875 \pi 64$$

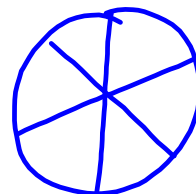
$$\underline{56.32\pi}$$



If you order a 12 in pizza and it is cut into 6 pieces...

a. What is the measure of each central angle?

$$\frac{360}{6} = 60^\circ$$



b. What is the area of one slice? Round to the tenth

$$A = \frac{60}{360} \cdot \pi 6^2 = (.1\bar{7})(3.14)(36) = \underline{19.25 \text{ in}^2}$$

c. Given the info above, what is another way you could find that area of one slice?

$$\frac{\pi r^2}{6}$$

Closure: Today I learned how to find the area of a sector.