

**Warm-Up:**

**18 school days until the EOC**

Review Unit 4A Tests



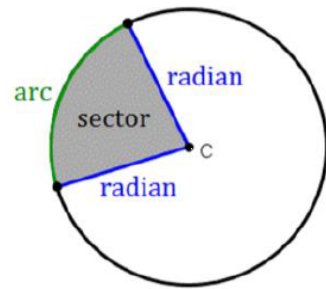
**What am I learning today?**

**Learning Objective 4B.2 (pg. 3-4)**

How to use the sector area formula.

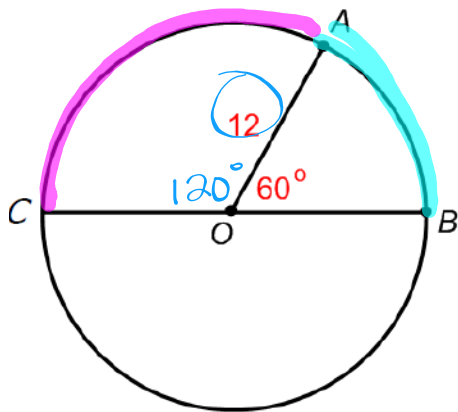
**Sector Area** – A piece of the area from the whole circle

**Funny way to remember:**  
Sector Area = Pie filling



**Formula:**

$$\frac{\text{(piece)} \text{ Sector Area}}{\text{(whole) Area } (\pi r^2)} = \frac{\text{Central Angle } (\theta)}{\text{Whole Circle in degrees } (360^\circ)}$$



1. Find the area that uses Arc AB.

$$\frac{60^\circ}{360^\circ} = \frac{x}{\pi(12)^2}$$

$$\frac{360^\circ x}{360} = \frac{8640\pi}{360} \quad (\text{in terms of pi})$$

$$x = 24\pi \approx 75.4$$

2. Find the area that uses Arc CA.

$$\frac{120^\circ}{360^\circ} = \frac{x}{\pi(12)^2}$$

$$\frac{360^\circ x}{360} = \frac{17280\pi}{360}$$

$$x = 48\pi \approx 150.8$$

## 2 - zSector Area.notebook

3. A circle has an arc whose measure is  $60^\circ$  and whose area is  $32.5 \text{ in}^2$ .  
What is the diameter of the circle?

$2(\text{radius})$

↑  
piece of  
angle

↑  
whole  
area

↑  
area  
(squared)

$$\text{Area} = 32.5 \text{ in}^2$$

$$\text{Area} = \pi r^2$$

$$\frac{32.5}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{10.3} = \sqrt{r^2}$$

$$3.2 = r$$

$$d = 2(3.2) = 6.4 \text{ in.}$$

1. A circle has an arc whose measure is  $80^\circ$  and whose area is  $88 \text{ cm}^2$ .  
What is the diameter of the circle?

Sector area?

$$\frac{80^\circ}{360^\circ} = \frac{x}{88}$$

$$\frac{360x}{360} = \frac{7040}{360}$$

$$x = 19.56 \text{ cm}^2$$

## 2 - zSector Area.notebook

2. Find the measure of the central angle of a circle if its minor arc area is  $14\pi \text{ ft}^2$  and the radius is 12 feet.

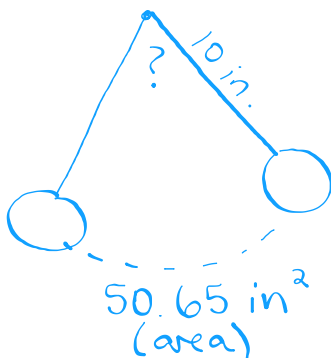
↑  
sector  
area

$$\frac{x}{360^\circ} \times \frac{14\pi}{\pi(12)^2}$$

$$\frac{(5040\pi)}{(144\pi)} = \frac{144\pi x}{144\pi}$$

$$35^\circ = x$$

3. A pendulum is 10 inches long. When the pendulum swings it travels along the arc of a circle and covers an area of  $50.65 \text{ in}^2$ . What is the angle that the pendulum is swinging?



$$\frac{x}{360^\circ} \times \frac{50.65}{\pi(10)^2}$$

$$\frac{18234}{(100\pi)} = \frac{100\pi x}{100\pi}$$

$$58.04^\circ = x$$

4. A windshield wiper is 24 inches long. In one sweep, it goes through an angle of  $125^\circ$ . What is the area that the windshield wiper covers?

$$\frac{125^\circ}{360^\circ} \times \frac{X}{\pi(24)^2}$$

$$\frac{360X}{360} = \frac{72000\pi}{360}$$

$$X = 200\pi$$

$$\approx 628.32 \text{ in}^2$$

**Classwork:**



Complete the classwork about sector area.

**HW:** Sector Area & EOC Review #1.

