

Name \_\_\_\_\_

Date \_\_\_\_\_

## Measurements of Arcs - Guided Lesson Explanation

### Explanation#1

The formula for the length of an arc is  $l = \frac{m}{360} \times C$

Where  $l$  is the arc length,  $C$  is the circumference, and  $m$  is the measure of the arc in degrees.

First, find the circumference.

$$C = 2\pi r \qquad C = 2\pi(4) \qquad C = 8\pi$$

The circumference is  $8\pi$  feet.

Now, find the length of the arc.

$$l = \frac{m}{360} \times C$$

$$l = \frac{225}{360} \times 8\pi$$

$$l = 5\pi$$

The length of the arc is  $5\pi$  feet.

### Explanation#2

The formula for the length of an arc is  $l = \frac{m}{360} \times C$

Where  $l$  is the arc length,  $C$  is the circumference, and  $m$  is the measure of the arc in degrees.

The value of radius =  $\frac{d}{2}$

$$r = \frac{8}{2}$$

$$r = 4 \text{ feet}$$

First, find the circumference.



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$$C = 2\pi r \qquad C = 2\pi(8) \qquad C = 16\pi$$

The circumference is  $16\pi$  feet.

Now, find the length of the arc.

$$l = \frac{m}{360} \times C$$

$$l = \frac{180}{360} \times 16\pi$$

$$l = 8\pi$$

The length of the arc is  $8\pi$  feet.

### Explanation#3

The formula for the length of an arc is  $l = \frac{m}{360} \times C$

Where  $l$  is the arc length,  $C$  is the circumference, and  $m$  is the measure of the arc in degrees.

First, find the circumference.

$$C = 2\pi r \qquad C = 2\pi(6) \qquad C = 12\pi$$

The circumference is  $12\pi$  feet.

Step 3) Now, find the length of the arc.

$$l = \frac{m}{360} \times C$$

$$l = \frac{60}{360} \times 12\pi$$

$$l = 2\pi$$

The length of the arc is  $2\pi$  feet.

