

Area of Circles

Unit 10 Lesson 3

Solve problem involving area of a circle. Key Vocabulary:

- Circle
- Diameter
- Radius



Circle

A circle is a boundary of a round region in a plane.

Area of a Circle

The area of a circle is the product of the two constant π and the square of the length of the radius of the circle.

$$A = \pi r^2$$

The area of a circle, with the diameter of d, is

$$A = \frac{\pi d^2}{4}$$

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Sample Problem 1: Find the area of the following circle.



$$A = \pi r^2$$

$$A = \pi 4^2$$

$$A = 16\pi$$



Sample Problem 1: Find the area of the following circle.



Solution:

$$A = \frac{\pi d^2}{4}$$

$$A = \frac{\pi 8^2}{4}$$

$$A = \frac{64\pi}{4}$$

$$A = 16\pi$$

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Sample Problem 2: Solve Problems involving the area of a circle.

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The area of the circle G is 81π . Find its diameter.

$$81\pi = \frac{\pi d^2}{4}$$
$$81(4)\pi = \pi d^2$$
$$d^2 = 324$$
$$d = 18$$

Sample Problem 2: Solve Problems involving the area of a circle.

Find the radius of a circle F if its area is 169π cm².

$$69\pi = \pi r^2$$
$$r^2 = 169$$
$$r = 13$$



Sample Problem 2: Solve Problems involving the area of a circle.

Find the area of a circle with a diameter of 21m.

$$A = \frac{\pi d^2}{4}$$

$$A = \frac{\pi 21^2}{4}$$

$$A = \frac{441\pi}{4}$$

$$A = 346.36m^2$$

$$R = \frac{441\pi}{4}$$

$$R = 346.36m^2$$

$$R = \frac{1}{4}$$