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Area of Circles

Unit 10 Lesson 3

AREA: CIRCLES

Students will be able to:

Solve problem involving area of a circle.

Key Vocabulary:

- Circle
- Diameter
- Radius

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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.

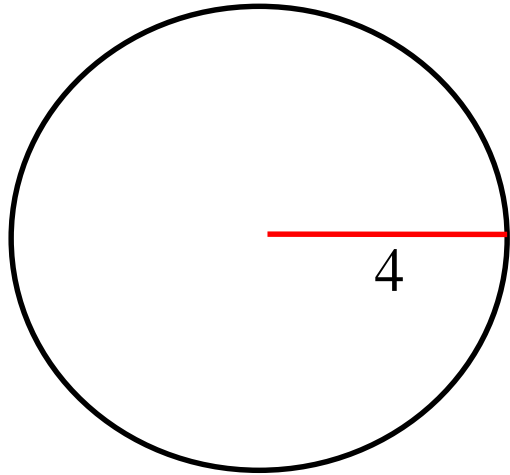
$$A = \pi r^2$$

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.



Solution:

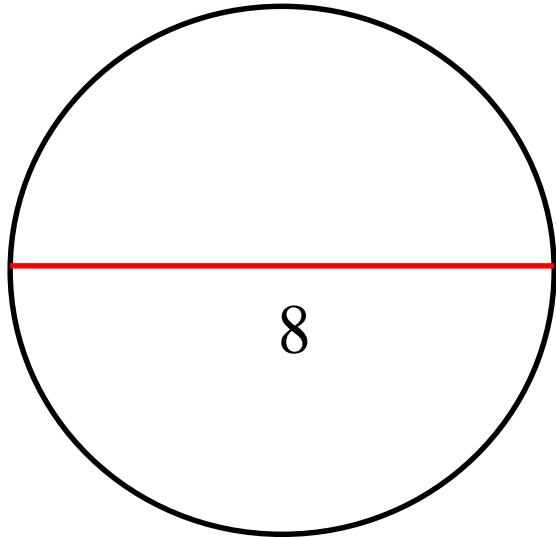
$$A = \pi r^2$$

$$A = \pi 4^2$$

$$A = 16\pi$$

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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.

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

Solution:

$$81\pi = \frac{\pi d^2}{4}$$

$$81(4)\pi = \pi d^2$$

$$d^2 = 324$$

$$d = 18$$

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

Find the radius of a circle F if its area is $169\pi\text{cm}^2$.

Solution:

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

$$r^2 = 169$$

$$r = 13$$

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

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

Solution:

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

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

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

$$A = 346.36m^2$$