U12 Topic 4 – Area of a Circle

AIM: How do you find the area of a circle given the radius or diameter?

Remember: What is area?
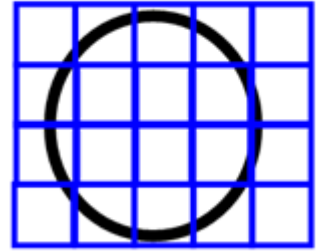
Area is the number of square units that is needed to cover a figure.

The **_units_** for area are **_always squared_** (*ex*: inches^2, square feet).

The **area** of a circle is equal to π times the radius squared.
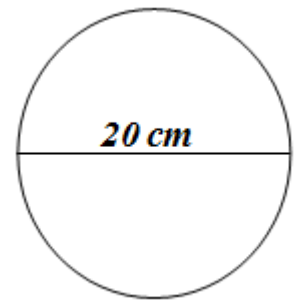
The **formula** for the area of a circle is:

$$A = \pi\ r^2$$

area   *radius*

Example #1: "Using the Pi Button"

Find the area of the circle to the right. Round your answer to the nearest _tenth_.

What do you know?	What do you need to find?

Step 1: Write out the formula   **F**

Step 2: Substitute   **S**

Step 3: Do the math.   **M**

Step 4: Round and label your answer   **U**

20 cm

Try It!

Find the area of a circle whose radius is 8 meters. Round your answer to the nearest _hundredth_.

What do you know?	What do you need to find?

Step 1: Write out the formula   **F**

Step 2: Substitute   **S**

Step 3: Do the math.   **M**

Step 4: Round and label your answer   **U**

Example #2: **"Leaving in Terms of Pi"**   **Try It!**

Find the area of a circle whose diameter
is 6 inches. Leave your answer in terms of π.

Find the area of a circle whose radius is 4 cm.
Leave your answer in terms of π.
Show your work.

F

S

M

U

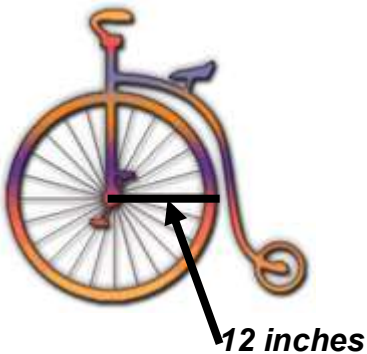**On Your Own!**

1.)   Find the **circumference** and **area** of the wheel with a radius of 12 inches. Use 3.14 for π.
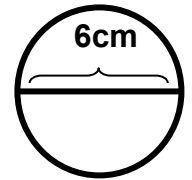   ***Show your work.***

12 inches

2.)   A revolving water sprinkler sprays water in all directions to a distance of 25 feet from the
        sprinkler. What area does it cover? Round to the nearest square foot. ***Show your work.***

U12 Problem Set #4 – Area of a Circle

1.) Find the **area** of the circle shown below. Round your answer to the nearest _tenths_ place. **Show your work.**

6cm

2.) A round table has a diameter of 35 inches. Find the area of the table. Leave your answer in terms of π. **Show your work.**

3.) A pizzeria has free delivery within a 7 kilometer radius of the restaurant. What was the size of the free delivery area? Round to the nearest _hundredth_. **Show your work**.

4.) A small pizza has a diameter of 10 inches, and a medium has a diameter of 12 inches. How much more pizza do you get with the medium pizza? Use 3.14 for π. **Show your work.** **Hint**: Find the area of each pizza.

Review It!

5.)   The radius of a circle is 7 inches.

a.)   What is the **circumference** of the circle? Use 3.14 for π. ***Show your work.***

b.)   Suppose the radius of the circle is doubled to 14 inches. What is the **circumference** of this circle? Use 3.14 for π. ***Show your work.***

c.)   Explain how doubling the radius affects the circumference.

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6.)   Simplify the following expressions. Be certain to show all algebraic work and leave your answer in standard form (highest to lowest exponent).

a.)   -8x + 9 + 4 - 2x   b.)   15 + 9a + a - 12

c.)   4r - 5s + 2rs - 8s - 3r   d.)   7x + 31x^2 + 8x