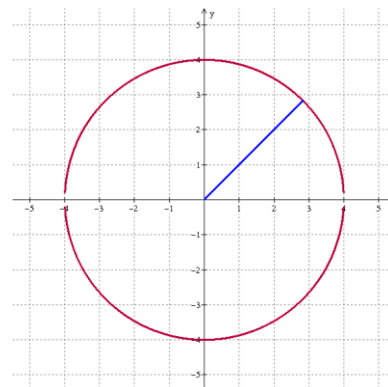


# Section 13.1—Distance Formula, Eqns of Circles

What is a CIRCLE?

What is the CENTER?

What is the RADIUS?



The center of this circle is: \_\_\_\_\_

The radius of this circle is: \_\_\_\_\_

The equation for this circle is  $x^2 + y^2 = 16$

See if you can figure this out...

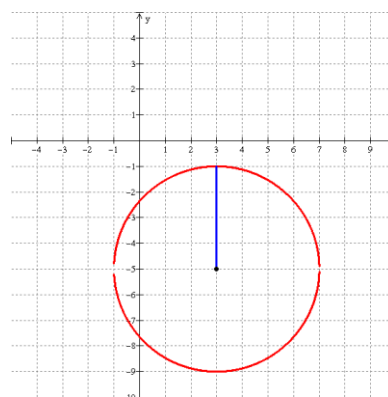
Find the center and radius for the following circles.

Center:

Radius:

Equation:

$$(x - 3)^2 + (y + 5)^2 = 16$$



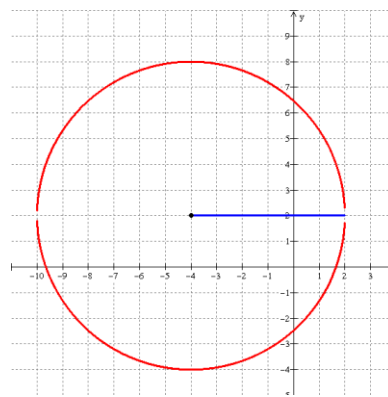
*Do you see any correlations?*

Center:

Radius:

Equation:

$$(x + 4)^2 + (y - 2)^2 = 36$$



*Correlations?*

What is the EQUATION OF A CIRCLE?

Given the center (h,k) and the radius "r" the equation of a circle is:

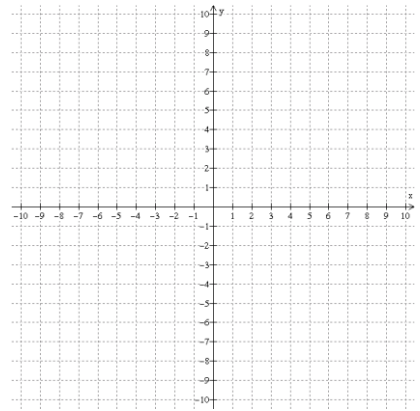
Center-Radius Form:

**Example** Graph the following circle.

$$(x + 2)^2 + (y + 5)^2 = 25$$

Center:

Radius:



**How do I WRITE THE EQUATION OF A CIRCLE?**

What is the equation of a circle with a center of  $(-4, 6)$  and a radius of 7?

**Example**

What is the equation of a circle with a center of  $(0, 0)$  and a radius of  $\sqrt{15}$  ?

**What if a circle is not in CENTER RADIUS FORM?**

What is the center and radius of the following circles?

$$x^2 + y^2 + 12x + 10y + 60 = 0$$

**Example**

$$x^2 + y^2 + 10x - 4y - 35 = 0$$

**How do I FIND THE DISTANCE BETWEEN TWO POINTS?**

If you are given 2 points  $(x_1, y_1)$  and  $(x_2, y_2)$ , to find the distance, use the distance formula:

$$d =$$

**Example**

Find the distance between the points  $(-4, 2)$  and  $(-1, 6)$

Find the distance between the points  $(2, 4)$  and  $(4, 8)$