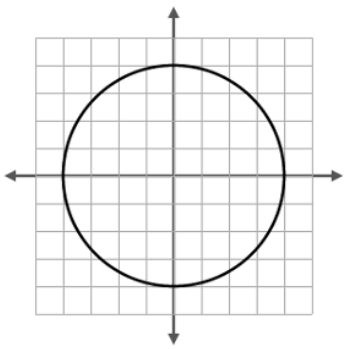


# EQUATIONS OF CIRCLES

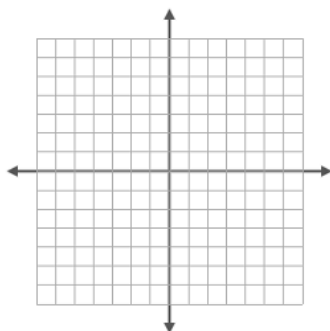
<p>CIRCLE Equations</p>	<p>A circle's equation is of the form:</p> <p>This is the _____ form of a circle equation.</p> <p>We can use _____ the square to put the equation of a circle into <b>center-radius form</b>:</p> 	
<p>EXAMPLES Finding the Center &amp; Radius of a Circle in Center-Radius Form</p>	<p>1. Given the equation below, what is the circle's center and radius?</p> $(x - 2)^2 + (y - 3)^2 = 4^2$	<p>2. Given the equation below, what is the circle's center and radius?</p> $(x + 1)^2 + (y - 4)^2 = 36$
	<p>3. Write the equation of a circle in center-radius form if the center is (1,2) and the radius is 5.</p>	<p>4. Write the equation of a circle in center-radius form if the center is (3, -6) and the radius is 8.</p>

# GENERAL FORM TO Center-Radius FORM

We convert the general form of a circle equation to **center-radius form** so that we can easily identify the circle's **center point** in coordinate form and the circle's **radius**.

**Example:** Find the center and radius of the circle with the equation below. Then, graph the equation on the given coordinate plane.

$$x^2 + y^2 - 4x + 2y = 11$$



# EXAMPLES

Finding the Center &  
Radius of a Circle in  
General Form

1. Find the center & radius.

$$x^2 + y^2 - 6y + 2x = 39$$

2. Find the center & radius.

$$x^2 + 4y + y^2 + 10x = -20$$

3. Find the center & radius.

$$x^2 - 6x + y^2 + 8y - 2 = 0$$

4. Find the center & radius.

$$y^2 + 14x + x^2 - 2y = 31$$