

Example 2: Determine the center and radius of a circle the given equation.

a) $x^2 + y^2 = \frac{9}{4}$ b) $(x+3)^2 + (y-5)^2 = 81$ c) $(x+4)^2 + (y+6)^2 = 1$

Example 3: Use the center and the radius to graph each circle.



Writing an Equation with a Pass-Thru Point

Step 1: Substitute the center (h, k) into the equation

Step 2: Substitute the "pass through point (x, y)" into the equation for x and y.

Step 3: Simplify and solve for r².

Step 4: Substitute r² back into the equation from Step 1.

Example 4: Write the equation of a circle with a given center (2, 5) that passes through the point (5,-1).

Writing an Equation with Two Points on the Circle	Midpoint Formula
Find the midpoint (center) between the two endpoints, and then follow steps 1-4.	

Example 5: Write the equation of a circle with endpoints of diameter at (-6, 5) and (4, -3).

Writing the Equation of a Circle in Standard Form

Step 1:	Group x's and group y's together.
Step 2:	Move any constants to the right side of the equation.
Step 3:	Use complete the square to make a perfect square trinomial for the x's and then again for the y's. *Remember, whatever you do to one side of the equation, you must do to the other!
Step 4:	Simplify factors into standard form of a circle!

Example 5: Write the equation of a circle in standard form. Then, state the center and the radius. a) $x^2 + y^2 + 4x - 8y + 16 = 0$ b) $x^2 + y^2 + 6x - 4y = 0$

c) $x^2 + y^2 - 6x - 2y + 4 = 0$

d)
$$x^2 + y^2 + 8x - 10y - 4 = 0$$