Geometry CC – Mr. Valentino

Unit 12 Day 2: Equation of a Circle (Completing the Square)!

Aim: How can we use completing the square to find the equation of a circle?

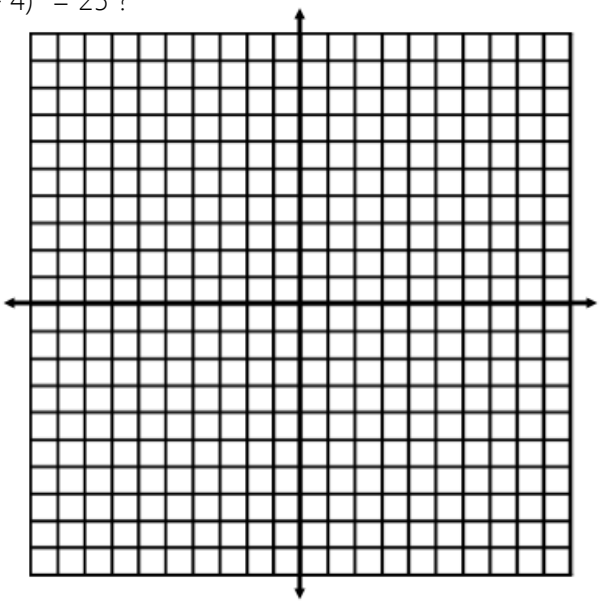
Do Now: Which points lie on the circle whose equation is $(x - 2)^2 + (y - 4)^2 = 25$?

a) (2, 9)

b) (-3, 4)

c) (7, 3)

d) (-2, 7)



Explain how you know:

_____

_____

_____

Sometimes the equation of a circle will be written in a different form (general form)

What is the center are radius of this circle?

$x^2 + 4x + y^2 - 6y = 12$

General Form of the Equation of a Circle

Let's try completing the square for this equation to find the center and radius!

$x^2 - 10x + y^2 + 6y - 2 = 0$

Find the center and radius of each circle by completing the square.

1. $x^2 + 4x + y^2 - 6y = 36$ Center:_____ Radius:_____	2. $x^2 + y^2 - 8x + 2y + 9 = 0$ Center:_____ Radius:_____
3. $x^2 - 4x + y^2 + 8y = -11$ Center:_____ Radius:_____	4. $x^2 + y^2 + 10y + 16 = 0$ Center:_____ Radius:_____
5. $x^2 + 8x + y^2 + 18y + 96 = 0$ Center:_____ Radius:_____	6. $y^2 + x^2 = -12x + 2y + 27$ Center:_____ Radius:_____