Geometry CC – Mr. Valentino

Unit 12 (Our LAST Unit!) Day 1 – Equation of a Circle

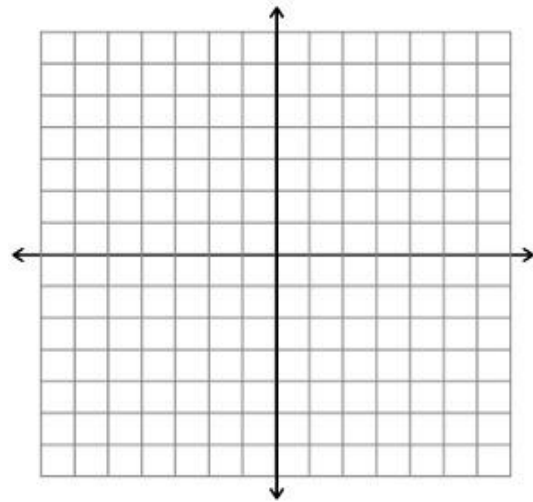Name: _____

Date: _____ Per: _____

Aim: What is the equation of a circle (Day 1)?

Do Now:

The center of a circle lies at the origin. Its radius is 5. Plot **at least** four points that will make up the circle.

How do you know they are 5 units away?

Equation of a Circle

1. Write an equation of the circle whose center is (5, 4) and whose radius is 7.

2. Write an equation of the circle whose center is (-5, -3) and whose radius is 9.

3. Write an equation of the circle whose center is (3, -4) and whose radius is 5.

4. Write an equation of the circle whose center is (*a, b*) and whose radius is *r*.

***You need to _____ the coordinates of the center to write the equation.

1. How can we write an equation of the circle whose center is (-5, 7), and which contains the point (3, -8)?

2. Write an equation of the circle whose center is (4, -9) and which passes through the point (-7, 5).

3. How can we write an equation of the circle whose diameter has endpoints (-3, 2) and (5, 4)?

4. Write an equation of the circle whose diameter has endpoints (-4, 11) and (8, -1).

Practice Problems

1. State the center and radius of each circle whose equation is given: (simplest radical form if needed).

a] $(x-3)^2 + (y-8)^2 = 100$ Center: Radius:

b] $(x+4)^2 + (y+9)^2 = 64$ Center: Radius:

c] $(x-2.3)^2 + (y+8.2)^2 = 81$ Center: Radius:

d] $(x+11)^2 + (y-3)^2 = 121$ Center: Radius:

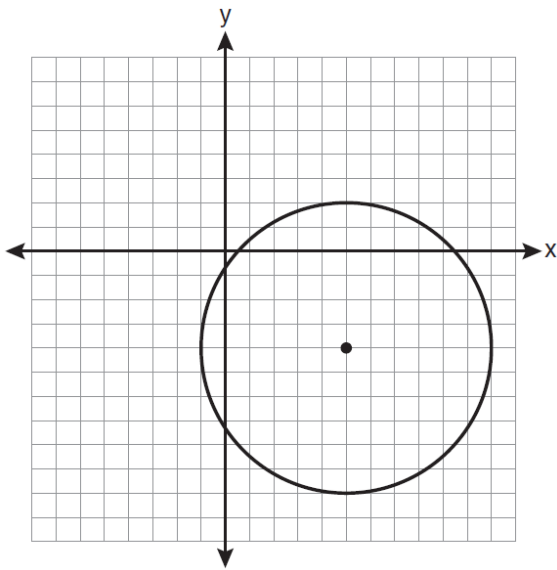e] $(x-14)^2 + (y+2)^2 = 17$ Center: Radius:

f] $(x+4)^2 + y^2 = 15$ Center: Radius:

g] $x^2 + (y-5)^2 = 32$ Center: Radius:

h] $x^2 + y^2 = 16$ Center: Radius:

2) Write an equation for this circle:

3) Write an equation for each circle whose properties are given:

a] Center: (4, 5)   Radius: 7

b] Center: (6, 2)   Radius: 8

c] Center: (-3, -9)   Radius: 11

d] Center: (-4, -6)   Radius: 6

e] Center: (-3, 1)   Radius: 9

f] Center: (-3, 0)   Radius: 6.5

g] Center: (-9, 8)   Radius: $\sqrt{13}$

h] Center: (5, -13)   Radius: $\sqrt{17}$

4) Write an equation of the circle whose center is (4, -1) and which passes through the point (5, 2).

5) Write an equation of the circle whose center is (5, -9), and passes through the point (-2, 3).

6) Write the equation of a circle whose diameter has endpoints (6, 2) and (-4, -8)

7) The equation of a circle is $(x - 2)^2 + (y + 4)^2 = 4$. Which diagram is the graph of the circle?