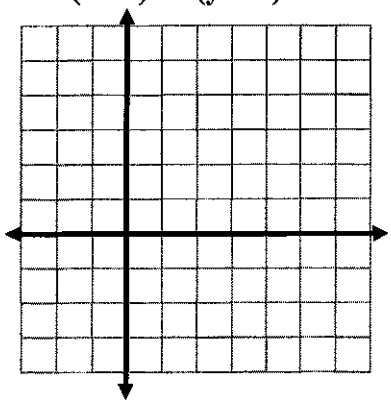
Honors Algebra 2: Unit 4 Circle Worksheet **Name** _____ **Period:** ____

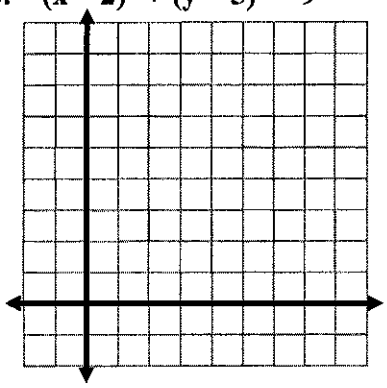
Note: If r^2 is not a perfect square then leave r in simplified radical form but use the decimal equivalent for graphing. Example: $\sqrt{12} = 2\sqrt{3} = 3.46$

1) **Graph the following circle:**

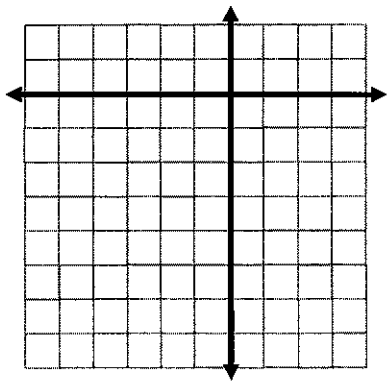
a. $(x - 3)^2 + (y + 1)^2 = 4$



b. $(x - 2)^2 + (y - 5)^2 = 9$



c. $(y + 4)^2 + (x + 2)^2 = 16$



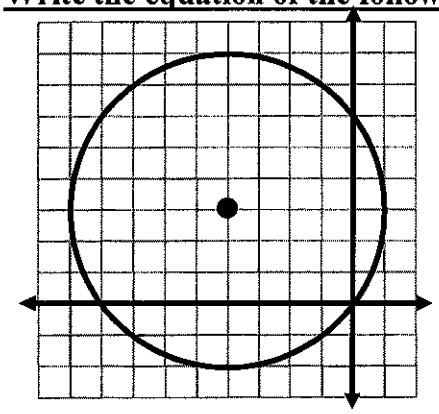
2) For each circle: Identify its center and radius.

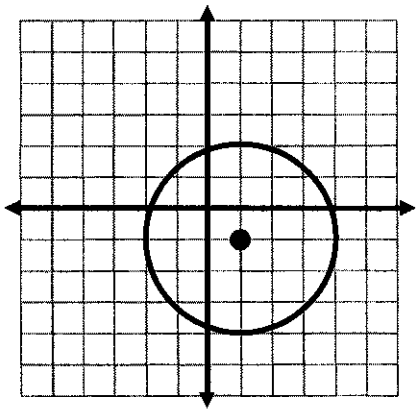
a. $(x + 3)^2 + (y - 1)^2 = 4$ b. $x^2 + (y - 3)^2 = 18$ c. $(y + 8)^2 + (x + 2)^2 = 72$

Center:_____ Center:_____ Center:_____

Radius:_____ Radius:_____ Radius:_____

3) **Write the equation of the following circles:**





4) Give the equation of the circle that is tangent to the y-axis and center is (-3, 2).

5) **Compare and contrast the following pairs of circles**

a. Circle #1: $(x - 3)^2 + (y + 1)^2 = 25$

Circle #2: $(x + 1)^2 + (y - 2)^2 = 25$

b. Circle #1: $(y + 4)^2 + (x + 7)^2 = 6$

Circle #2: $(x + 7)^2 + (y + 4)^2 = 36$

Putting Equations in Standard Form

Example 1: $x^2 + y^2 + 6x - 8y - 11 = 0$

$(x^2 + 6x) + (y^2 - 8y) = 11$

$(x^2 + 6x + 9) + (y^2 - 8y + 16) = 11 + 9 + 16$

$(x + 3)^2 + (y - 4)^2 = 36$

Center: (-3, 4) Radius: 6

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

Center:_____ Radius:_____

6) Find the standard form, center, and radius of the following circles:

6a) $\mathbf{x^2 + y^2 - 4x + 8y - 5 = 0}$

Center:_____

Radius:_____

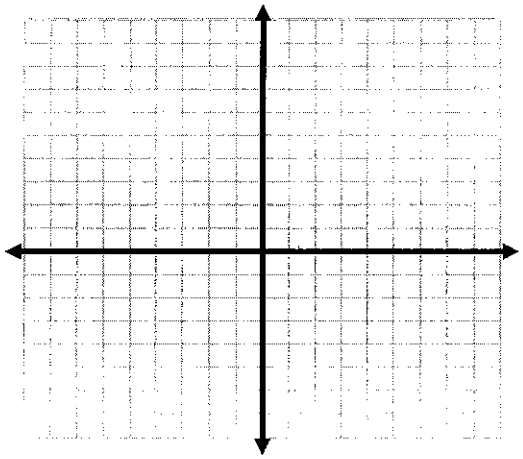
6b) $\mathbf{4x^2 + 4y^2 + 36y + 5 = 0}$

Center:_____

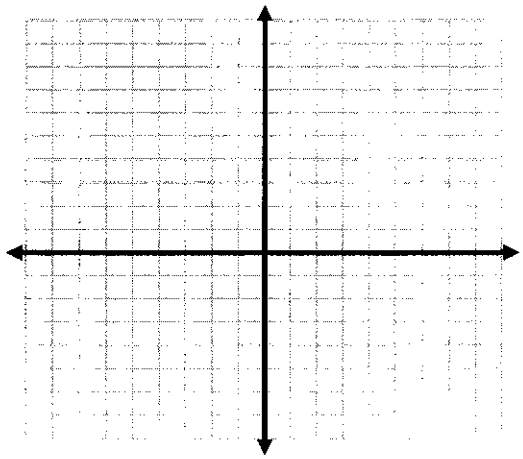
Radius:_____

7) **Graph the following circles:**

7a) $x^2 - 2x + y^2 + 8y - 8 = 0$



7b) $x^2 + y^2 - 6x + 4y - 3 = 0$



8) Give the equation of the circle whose center is (5,-3) and goes through (2,5)

9) Give the equation whose endpoints of a diameter at (-4,1) and (4, -5)

10) Give the equation of the circle whose center is (4,-3) and goes through (1,5)

11) Give the equation whose endpoints of a diameter at (-3,2) and (1, -5)