Integrated Math 3 Name: _____
Unit 1: Analytic Geometry
1.13 Date: _____ Period: _____

Objective: Complete the square to find the center and radius of a circle given by an equation.

Warm Up:
Factor:

a. $x^2 - 16x + 15$

b. $x^2 - 14x + 49$

Steps for Completing the Square:

1. Be sure that the coefficient of the highest power is _____. If it's not, _____ each term by that value to create a leading coefficient of _____.
2. Move the constant term to the right hand side.
3. Prepare to add the needed value to create the perfect square trinomial. Be sure to _____ the equation.
4. To find the needed value for the perfect square trinomial, take _____ of the coefficient of the _____ term, _____ it, and add that value to both sides of the equation.
5. _____ the perfect square trinomial.

Examples: Convert the general form circle equations to standard form. Label the center and radius.

a. $x^2 + y^2 - 8x + 6y - 24 = 0$

b. $6x^2 - 12x + 6y^2 + 36y = 36$

Examples: Convert the general form circle equations to standard form. Label the center and radius.

a. $24x + x^2 + 6y + y^2 + 137 = 0$

b. $x^2 + y^2 - 8x + 6y + 25 = 0$

c. $8x + 32y + y^2 = -263 - x^2$

d. $364 + 28y + y^2 + x^2 = -26x$