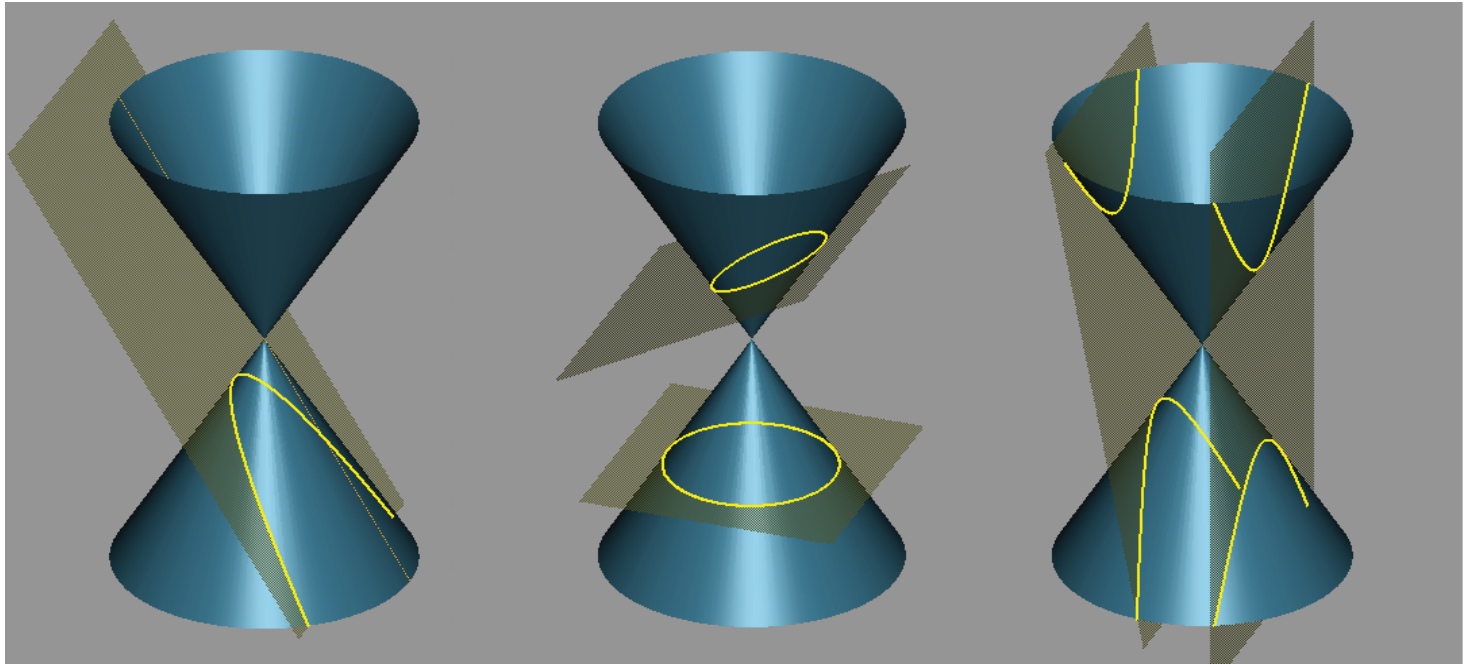


Name: _____
 Period: _____

Date: _____
 Pre-Calculus: Intro to Conics

Conic Sections:

Name	Picture
1.	
2.	
3.	
4.	



http://upload.wikimedia.org/wikipedia/commons/4/48/Conic_sections_2.png

These graphs are called conic sections. A plane cutting, or sectioning a cone forms conics. They are relations whose equations are quadratics with two variables.

The general form of a conic section is $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$

To recognize conic sections from this equation, follow these general rules: (**** for these rules to apply, B=0*)

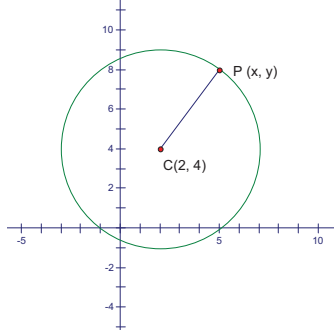
1. The conic is _____ if x^2 and y^2 have equal coefficients.
2. The conic is _____ if x^2 and y^2 have unequal coefficients, but the same sign.
3. The conic is _____ if x^2 and y^2 have opposite signs.
4. The conic is _____ if only one of the two variables is squared.

Now Practice! Identify the conic.

1. $x^2 + 4y^2 + 5x + 6y = 100$ _____
2. $x^2 - 4y^2 + 5x + 6y = 100$ _____
3. $-x^2 + 4y^2 + 5x + 6y = 100$ _____
4. $4x^2 + 4y^2 + 5x + 6y = 100$ _____
5. $4x^2 + 5x + 6y = 100$ _____
6. $4y^2 + 5x + 6y = 100$ _____

The set of all points $P(x, y)$ in the plane that are 5 unit from the point $C(2, 4)$ is a *circle*

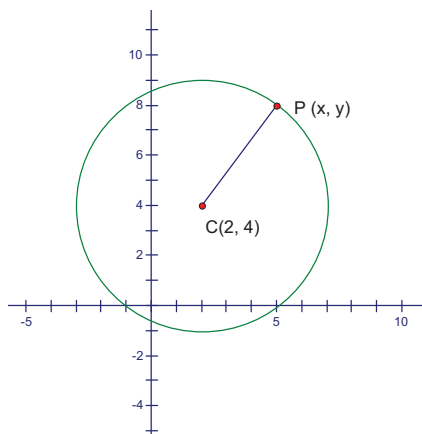
Find the equation of the circle



Use your Distance Formula!!

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

What do you know that the distance of CP has to be?



In General

If $P(x, y)$ is on the circle with center $C(h, k)$ and radius r , then:

$$(x - h)^2 + (y - k)^2 = r^2$$

Write the equation of the circle:

- Center (0, 0) and Radius = 4
- Center (-1, 7) and Radius = 3
- Center (4, -4) and Radius = 9
- Center (-3, -10) and Radius = 6

Find the Center and Radius for each of the following 4 equations

$$(x - 4)^2 + (y - 2)^2 = 16$$

$$(x + 5)^2 + (y - 1)^2 = 20$$

$$(x - 9)^2 + y^2 = 48$$

$$x^2 - 6x + y^2 + 20y + 84 = 0$$

$$x^2 - 6x + y^2 + 20y + 84 = 0$$

We need to COMPLETE THE SQUARE!!!

Name: _____
Period: _____

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Pre-Calculus: 6.2 Circles Extra Practice

Directions: Complete the square for the following conics in standard form. After writing the equation in (h, k) form, identify the center, radius, and draw a sketch.

Follow these steps!!

1. Group like terms together and move the constant to the other side.
2. Complete the square for x and y.
(Take half of the coefficient of x and y, square it, and add it to both sides)
*You may not always complete the square for both x and y!
3. Factor each perfect square trinomial to a binomial squared.
4. Identify the center, radius, and draw a sketch of the graph.

EXAMPLE :

$$x^2 - 6x + y^2 + 20y + 84 = 0$$

$$x^2 - 6x + y^2 + 20y = -84$$

$$x^2 - 6x + 9 + y^2 + 20y + 100 = -84 + 9 + 100$$

$$x^2 - 6x + 9 + y^2 + 20y + 100 = 25$$

$$(x - 3)^2 + (y + 10)^2 = 25$$

Center : (3, -10)

Radius : 5

1. $x^2 - 8x + y^2 - 2y + 13 = 0$

2. $x^2 + 6x + y^2 - 7 = 0$

3. $x^2 + y^2 - 100 = 0$

4. $x^2 + 8x + y^2 + 14y + 55 = 0$

5. $x^2 + 10x + y^2 - 2y - 118 = 0$

6. $x^2 - 12x + y^2 - 4y + 4 = 0$

7. $x^2 + 10x + y^2 - 14y + 49 = 0$

8. $x^2 - 18x + y^2 - 6y + 9 = 0$

9. $x^2 + 4x + y^2 + 12y + 39 = 0$

10. $x^2 - 16x + y^2 + 24y + 199 = 0$