

1.6, 1.7 Writing Project #1 is due Friday, 9/9, If you want it handed by on Monday, before the Wednesday Test. Hold off starting WP #1, until this Friday.

$$x^2 - 6x + 3^2 + y^2 + 8y + 4^2 = 0 + 9 + 16$$

$$\begin{matrix} \uparrow & & \uparrow \\ a^2 - 2ab + b^2 & & a^2 + 2ab + b^2 \end{matrix}$$

$$6x = 2ab, \quad a = x \rightarrow$$

$$6x = 2 \times b$$

$$3 = \frac{6x}{2x} = b$$

$$(a-b)^2 = a^2 - 2ab + b^2$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$8y = 2ab = 2yb$$

$$8y = 2yb$$

$$4 = b$$

Completing the square for standard Equation of a Circle.

$$x^2 - 6x + 3^2 + y^2 + 8y + 4^2 = 0 + 9 + 16$$

$$\begin{matrix} \downarrow & & \downarrow \\ \frac{6}{2} = 3 \rightarrow 3^2 & & \frac{8}{2} = 4 \rightarrow 4^2 \end{matrix}$$

$$(x-3)^2 + (y+4)^2 = 25$$

$$(h,k) = (3, -4), \quad r = 5$$

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

(h,k) = center, r = radius

How far from (h,k) is (x,y) ?

$$\sqrt{(x-h)^2 + (y-k)^2} = \text{Distance} = r$$

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