Advanced Math Worksheet—Vertex Form to Standard Form

Name _____ Hour _____

We have been working with quadratic equations in Vertex Form, $y = a(x - h)^2 + k$. However, it is more common for quadratic equations to be given to us in Standard Form, $y = ax^2 + bx + c$. Today's assignment is for you to practice using FOIL to change equations from Vertex Form into Standard Form. Use the example below to guide your work.

Example:

$$y = -2(x+3)^{2} - 5$$

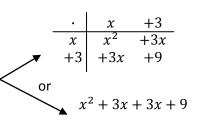
$$y = -2(x^{2} + 6x + 9) - 5$$

$$y = -2x^{2} - 12x - 18 - 5$$

$$y = -2x^{2} - 12x - 23$$

Given.

Multiply the quantity squared. (FOIL) < Distribute the a. Combine like terms.



Problems:

1. $y = 6(x - 4)^2 - 1$	$2. y = \frac{1}{2}(x+4)^2 + 6$	3. $y = -5(x-1)^2 + 4$
4. $y = -\frac{1}{3}(x+6)^2 - 1$	5. $y = 4(x+2)^2 - 8$	6. $y = \frac{-2}{3}(x - 9)^2 - 2$
7. $y = (x-2)^2 + 7$	$8. y = (x + \frac{1}{2})^2 - 2$	9. $y = 18(x - \frac{1}{3})^2 + 5$
$10. \ y = -2\left(x + \frac{1}{2}\right)^2$	$11. \ y = 13(x-2)^2 + 15$	$12. \ y = 2(x+8)^2 + 10$