Advanced Math **Name _____**
Worksheet—Vertex Form to Standard Form **Date _____ 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:

$y = -2(x+3)^2 - 5$ Given.
$y = -2(x^2 + 6x + 9) - 5$ Multiply the quantity squared. (FOIL)
$y = -2x^2 - 12x - 18 - 5$ Distribute the a.
$y = -2x^2 - 12x - 23$ Combine like terms.

$\cdot$	x	$+3$
x	x^2	$+3x$
$+3$	$+3x$	$+9$

or

$x^2 + 3x + 3x + 9$

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. $y = 2(x+8)^2 + 10$