Advanced Math
Worksheet—Vertex Form to Standard Form

Name _____
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:

$y = -2(x + 3)^2 - 5$
$y = -2(x^2 + 6x + 9) - 5$
$y = -2x^2 - 12x - 18 - 5$
$y = -2x^2 - 12x - 23$

Given.
Multiply the quantity squared. (FOIL)
Distribute the -2.
Combine like terms.

·	x	$+3$
x	x^2	$+3x$
$+3$	$+3x$	$+9$

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

Problems:

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