

**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:

$$\begin{aligned} y &= 2(x + 3)^2 - 5 \\ y &= 2(x^2 + 6x + 9) - 5 \\ y &= 2x^2 + 12x + 18 - 5 \\ y &= 2x^2 + 12x + 13 \end{aligned}$$

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



Problems:

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