Converting from Vertex Form to Standard Form

Multiply out the binomial, distribute (if needed), & combine like terms.

1. $f(x) = (x-1)^2 + 8$

2. $f(x) = 2(x+3)^2 - 5$

3. $f(x) = -(x-4)^2 + 3$

4. $f(x) = 2(x+1)^2 - 2$

Converting from Standard Form to Vertex Form

Find the Vertex *Method:*

★ Identify a, b, & c.

★ Find the line of symmetry or "*h*" by using $x = \dfrac{-b}{2a}$

★ Find the y value of the vertex, or "*k*" by substituting "x" into the equation.

★ Go get "a" (it stays the same).

★ Write the equation in vertex form using your found values of *a*, *h*, and *k*.

$f(x) = \mathbf{a}(x - \mathbf{h})^2 + \mathbf{k}$

5. $f(x) = x^2 + 8x + 1$

6. $f(x) = 3x^2 - 6x + 5$

Using the Ti-84 Calculator:
- ★ "Y=" and type in the function
- ★ "Graph"
- ★ Press "2nd", "Trace" (to get "Calc"), and Min or Max as applicable
- ★ Set the bounds, make your best guess, and hit enter

7. $f(x) = x^2 + 6x + 8$

8. $f(x) = 3x^2 + 24x + 50$