

# Convert from Standard Form to Vertex Form

## (Completing the Square – Example 2)

**Step 1:** Check the coefficient of the  $x^2$  term. If 1 goto step 2  
If not 1, factor out the coefficient from the  $x^2$  and  $x$  term.

**Step 2:** Calculate the value of :  $(b/2)^2$

**Step 3:** Group the  $x^2$  and  $x$  term together, then add  $(b/2)^2$  and subtract  $(b/2)^2$

**Step 4:** Factor & Simplify

**Example 2:**  $y = 2x^2 + 4x - 1$  (Standard Form)

$$y = 2(x^2 + 2x) - 1 \quad (2/2)^2 = (1)^2 = 1$$

$$y = 2(x^2 + 2x + 1) - 1 - 2 \quad \text{(WHY did we subtract 2 instead of 1?)}$$

$$y = 2(x + 1)(x + 1) - 1 - 2$$

$$y = 2(x + 1)^2 - 3 \quad \text{(Vertex Form)}$$