

Quadratic form:

$$y = ax^2 + bx + c$$

Parabolic form:

$$y - k = a(x - h)^2$$

$$\underline{y = 3x^2 + 6x - 1}$$

We want to complete the square!

$$\frac{y}{3} = x^2 + 2x - \frac{1}{3}$$

$$+ \frac{1}{3}$$

$$\frac{y}{3} + \frac{1}{3} = x^2 + 2x + \underline{1}$$

$$(a+b)(a+b)$$

$$a^2 + ab + ab + b^2 = a^2 + 2ab + b^2$$

$$a = x$$

$$2x = 2ab$$

$$2x = 2x \cdot b$$

$$\frac{2 = 2b}{2}$$

$$b = 1$$

$$\frac{y}{3} + \frac{1}{3} + 1 = x^2 + 2x + 1$$

$$1 = \frac{3}{3} + \frac{1}{3} = \frac{4}{3}$$

$$3\left(\frac{y}{3} + \frac{4}{3}\right) = \left((x+1)^2\right) \cdot 3$$

$$y + 4 = 3(x+1)^2$$

Graphing from Quadratic Form

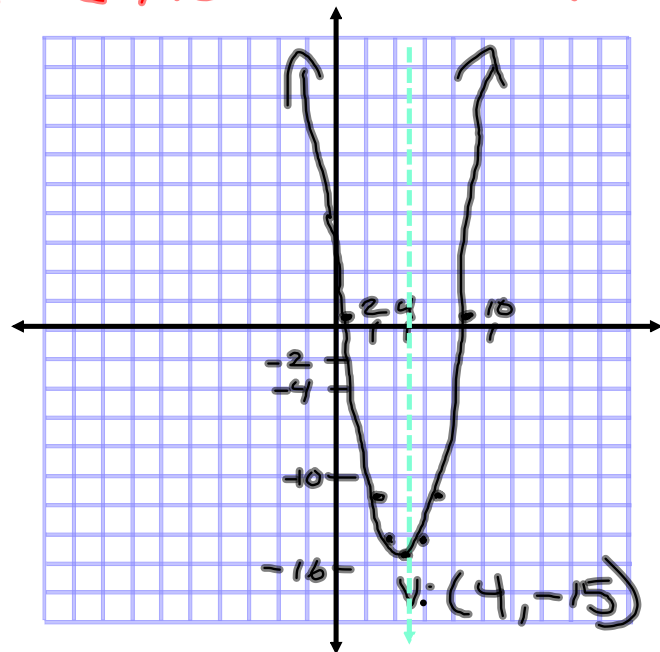
$$f(x) = x^2 - 8x + 1$$

→ plug into **CALCULATOR**

→ calculate vertex
(min. or max.)

$$V: (4, -15)$$

→ use table
to find other
points.



$$y = \frac{1}{4}x^2 - 3x + 4$$

$$V(6, -5)$$

$$(2, -1)$$

$$(4, -4)$$

$$(6, -5)$$