

$$y = x^2 - 2x - 5$$

$$\left(\frac{b}{2}\right)^2 = \left(\frac{-2}{2}\right)^2 = 1$$

$$\frac{b}{2} = -1$$

$$0 = x^2 - 2x - 5$$

$$+5 \qquad \qquad \qquad +5$$

$$5 + \boxed{1} = x^2 - 2x + \boxed{1}$$

$$\sqrt{6} = \sqrt{(x-1)^2}$$

$$\pm \sqrt{6} = x - 1$$

$$1 \pm \sqrt{6} = x$$

$$6 = (x-1)^2$$

$$y = 1(x-1)^2 - 6$$

$$y = x^2 + 16x + 71$$

$$\frac{b}{2} = \frac{16}{2} = 8$$

$$\left(\frac{b}{2}\right)^2 = 64$$

$$-71 = x^2 + 16x$$

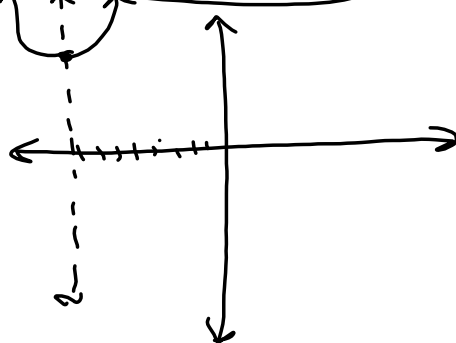
$$+ \boxed{64} \qquad \qquad \qquad + \boxed{64}$$

$$-7 = (x+8)^2$$

$$\text{vertex form } y = (x+8)^2 + 7$$

$$(x-h)^2 + k$$

$(h, k) = (-8, 7)$
 opens up
 axis of symmetry
 $x = -8$



$$y = -x^2 + 6x - 5$$

$$0 = -x^2 + 6x - 5$$

$$\begin{array}{r} +5 \\ \hline 5 + [-9] = -x^2 + 6x + \boxed{9} \end{array}$$

$-(x^2 - 6x + 9)$
 factor out
 -1

$$-4 = -(x - 3)^2$$

$$+4 \quad +4$$

$$(3, 4) \quad y = -(x - 3)^2 + 4$$