Rewrite the equation in vertex form. Then graph the equation.

$$y = x^2 + 12x + 38$$

$y - 38 = x^2 + 12x$

$y - 38 = x^2 + 12x + 36$
$+ 36$

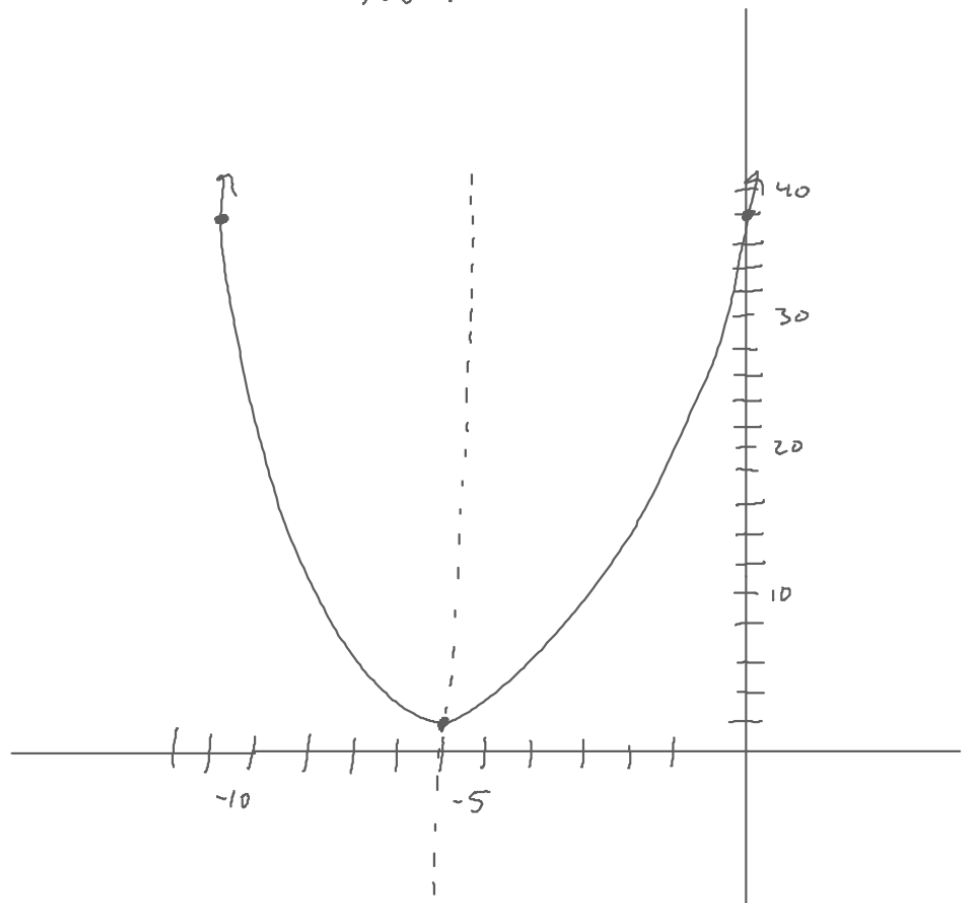$y - 2 = (x + 6)^2$

$y = (x + 6)^2 + 2$

Vertex $(-6, 2)$

A.O.S $\underline{\quad X = -6 \quad}$

Y-intercept $(0, 38)$

X-intercepts None

$0 = (x + 6)^2 + 2$

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

No Real Solutions

Rewrite the equation in vertex form. Then graph the equation.

$$y = x^2 - 8x + 15$$

$y - 15 = x^2 - 8x + 16$
$\quad + 16$

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

$y = (x-4)^2 - 1$

Vertex $(4,-1)$

A.O.S $\quad x = 4$

y-intercept $(0,15)$

X-intercepts: $(5,0)$ $(3,0)$

$y = (x-4)^2 - 1$

$0 = (x-4)^2 - 1$

$1 = (x-4)^2$

$\pm 1 = x - 4$

$x = 4 \pm 1$

$\quad 4 + 1 = 5$
$\quad 4 - 1 = 3$