The Three Different Forms of a Quadratic Equation:

① Standard Form:

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

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

$$0 = (x-1)(x-5)$$

$\times$ 5

$+$ -6

$-1, -5$

x. 1

$x - 1 = 0$ $+1$ $+1$

$x = 1$

$x - 5 = 0$

$x = 5$

$\{1, 5\}$

② Intercept Form (x int)

$$y = a(x-p)(x-q)$$

ex. $y = -2(x+2)(x-3)$

$x+2=0$ $\quad x-3=0$

$x=-2$ $\quad x=3$

$\{-2, 3\}$

③ Vertex Form

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

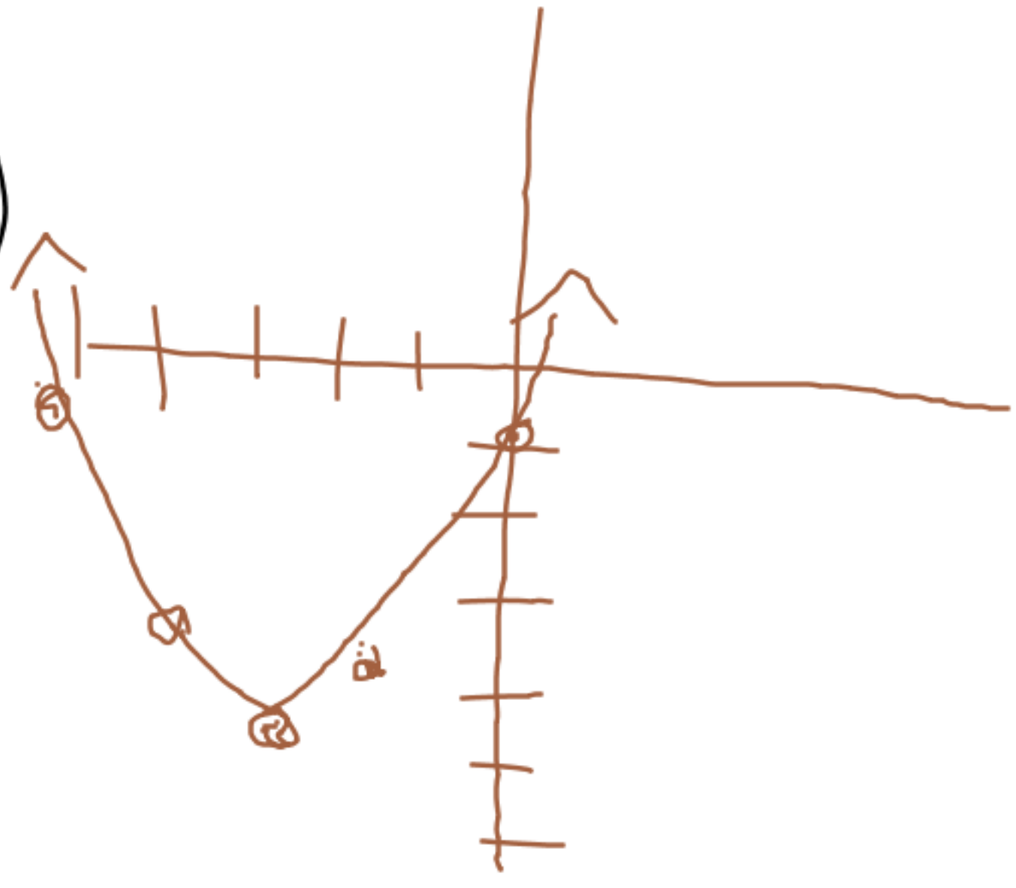
(h, k) is the vertex

*'h' is the opposite sign.

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

x y

vertex = $(-3, -5)$



Glossary

parabola

x intercepts

y intercept

vertex

Definitions for Glossary

Minimum →  – lowest point

Maximum →  – highest point

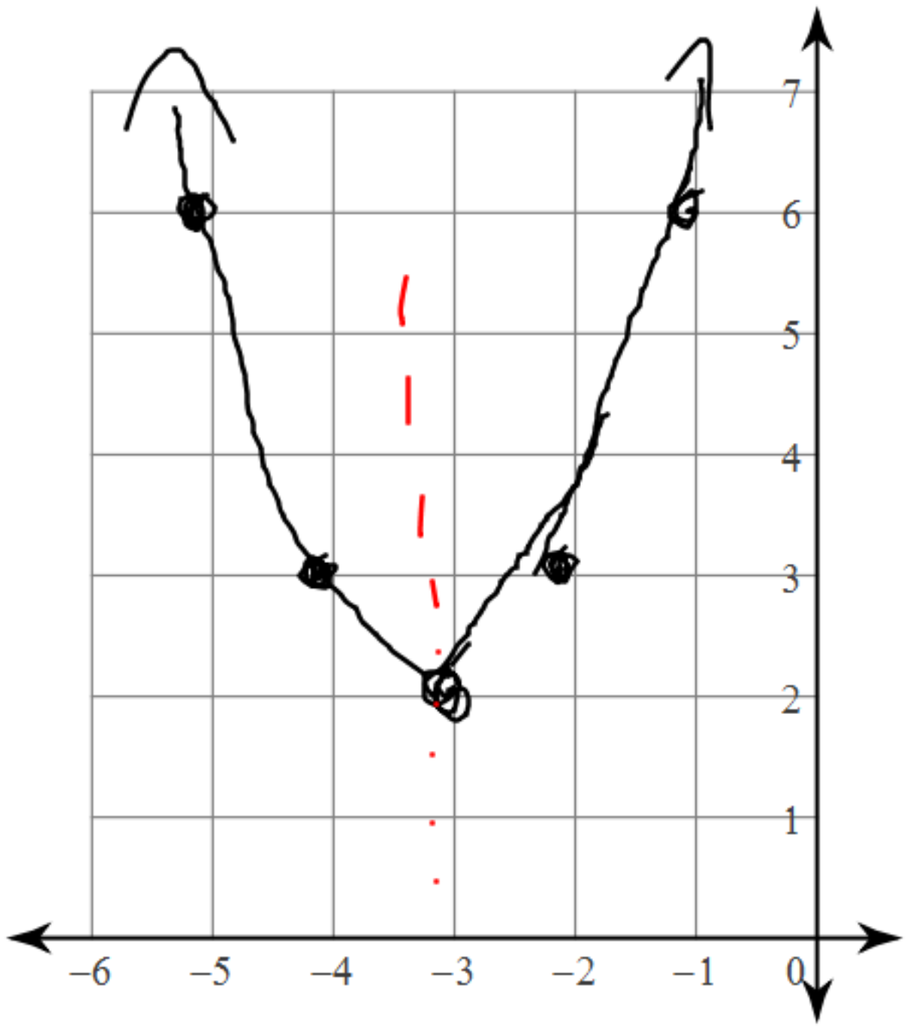
Axis of Symmetry →  $x = 3$

Transformations:

- Horizontal Shift
- Vertical Shift
- Stretch or Shrink
- Flip

Maximum or minimum? Label the Axis of symmetry. Sketch the graph of each function.

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



→ vertex : (-3, 2)

→ min.

→ A.o.S. x = -3

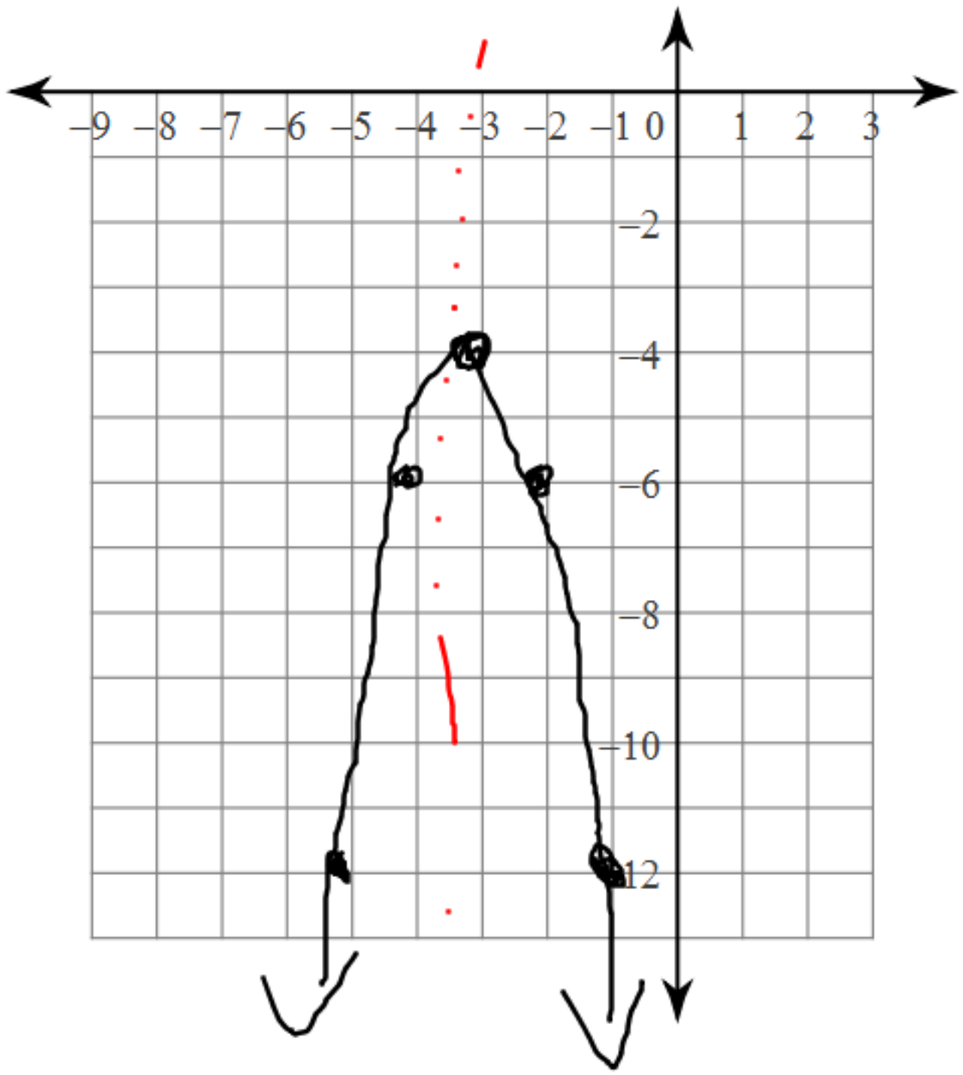
→ horizontal shift left 3

→ v.s. up 2

→ opens up

Maximum or minimum? Label the Axis of symmetry. Sketch the graph of each function.

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



vertex : (–3, –4)

→ Maximum

→ h.s. left 3

→ v.s. down 4

→ opens down

→ A.o.S. x = –3

→ shrink by 2