

Graphing Quadratics in Vertex Form Practice

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

Vertex: $(2, 1)$

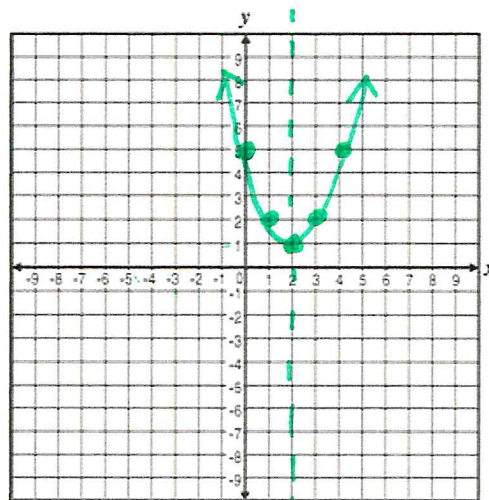
Axis of Symmetry: $x = 2$

Y - Intercept:

$$\begin{aligned} y &= (0 - 2)^2 + 1 \\ &= (-2)^2 + 1 \\ &= 4 + 1 = 5 \\ &(0, 5) \end{aligned}$$

$$\begin{aligned} \underline{x=1}: y &= (1 - 2)^2 + 1 \\ &= (-1)^2 + 1 \\ &= 1 + 1 \\ &= 2 \\ &(1, 2) \end{aligned}$$

x	2	0	4	1	3
y	1	5	5	2	2



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

Vertex: $(-3, -2)$

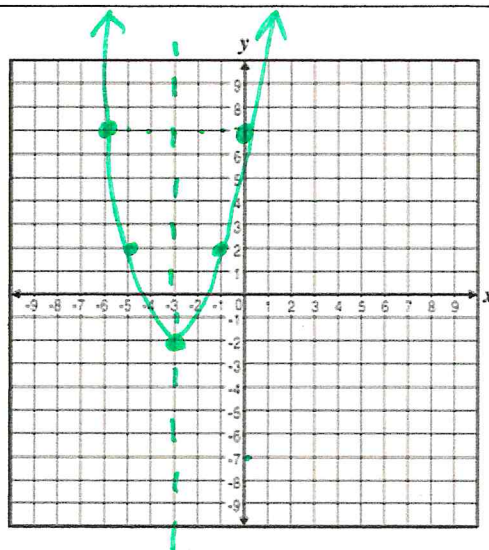
Axis of Symmetry: $x = -3$

Y - Intercept:

$$\begin{aligned} y &= (0 + 3)^2 - 2 \\ &= 9 - 2 \\ &= 7 \\ &(0, 7) \end{aligned}$$

$$\begin{aligned} \underline{x=-1} \\ y &= (-1 + 3)^2 - 2 \\ &= (2)^2 - 2 \\ &= 4 - 2 \\ &= 2 \\ &(-1, 2) \end{aligned}$$

x	-3	0	-6	-1	-5
y	-2	7	7	2	2



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

Vertex: $(-1, 4)$

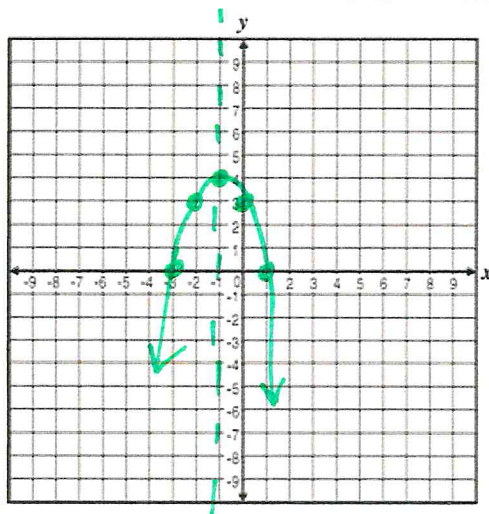
Axis of Symmetry: $x = -1$

Y - Intercept:

$$\begin{aligned} y &= -(0 + 1)^2 + 4 \\ &= -(1)^2 + 4 \\ &= -1 + 4 \\ &= 3 \\ &(0, 3) \end{aligned}$$

$$\begin{aligned} \underline{x=1} \\ y &= -(1 + 1)^2 + 4 \\ &= -(2)^2 + 4 \\ &= -4 + 4 \\ &= 0 \\ &(1, 0) \end{aligned}$$

x	-1	0	-2	1	-3
y	4	3	3	0	0



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

Vertex: $(2, -1)$

Axis of Symmetry: $x = 2$

Y - Intercept:

$$y = 2(0-2)^2 - 1$$

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

$$= 2(4) - 1$$

$$= 8 - 1 = 7 \quad (0, 7)$$

$$x = 1$$

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

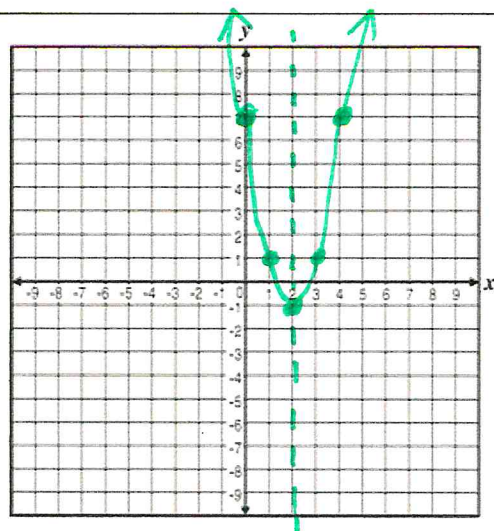
$$= 2(-1)^2 - 1$$

$$= 2(1) - 1$$

$$= 2 - 1$$

$$= 1 \quad (1, 1)$$

x	2	0	4	1	3
y	-1	7	7	1	1



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

Vertex: $(3, 1)$

Axis of Symmetry: $x = 3$

Y - Intercept:

$$y = -2(0-3)^2 + 1$$

$$= -2(-3)^2 + 1$$

$$= -2(9) + 1$$

$$= -18 + 1$$

$$= -17 \quad (0, -17)$$

$$x = 1$$

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

$$= -2(-2)^2 + 1$$

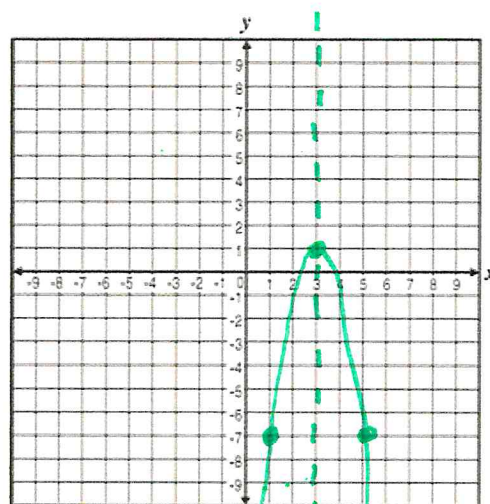
$$= -2(4) + 1$$

$$= -8 + 1$$

$$= -7$$

$$(1, -7)$$

x	3	0	6	1	5
y	1	-17	-17	-7	-7



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

Vertex: $(2, -1)$

Axis of Symmetry: $x = 2$

Y - Intercept:

$$y = \frac{1}{2}(0-2)^2 - 1$$

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

$$= \frac{1}{2}(4) - 1$$

$$= 2 - 1 = 1 \quad (0, 1)$$

$$x = 1$$

$$y = \frac{1}{2}(1-2)^2 - 1$$

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

$$= \frac{1}{2}(1) - 1$$

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

$$= -0.5$$

x	2	0	4	1	3
y	-1	1	1	-0.5	-0.5

