

STATION 1

Find the vertex of the quadratic function: $y = -4x^2 - 8x - 1$ $\frac{-b}{2a} = \frac{8}{2(-4)} = \frac{8}{-8} = -1$

$$\begin{aligned} y &= -4(-1)^2 - 8(-1) - 1 \\ &= -4(1) + 8 - 1 \\ &= -4 + 8 - 1 \\ &= 4 - 1 \\ &= 3 \end{aligned}$$

$$(-1, 3)$$

STATION 2

Find the y-intercept of the quadratic function: $y = -4x^2 - 8x - 1$

$$(0, -1)$$

STATION 3

Find the vertex of the quadratic function: $y = -x^2 + 6x + 8$ $-(3)^2 + 6(3) + 8$

$$\frac{-b}{2(-1)} = \frac{-6}{-2} = 3$$

$$\begin{aligned} &= -9 + 18 + 8 \\ &= 9 + 8 \\ &= 17 \end{aligned}$$

$$(3, 17)$$

STATION 4

Find the axis of symmetry of the quadratic function: $y = -x^2 + 6x + 8$

$$\frac{-b}{2(-1)} = \frac{-6}{-2} = 3$$

$$x = 3$$

STATION 5

Find the vertex of the quadratic function: $y = -2x^2 - 16x + 5$ $\frac{16}{2(-2)} = \frac{16}{-4} = -4$

$$(-4, 37)$$

STATION 6

Find the vertex of the quadratic function: $y = -2x^2 - 16x - 3$ $\frac{16}{2(-2)} = \frac{16}{-4} = -4$

$$-2(-4)^2 - 16(-4) - 3 = 29$$

$$(-4, 29)$$

STATION 7

Graph the function: $y = x^2 - 10x + 18$

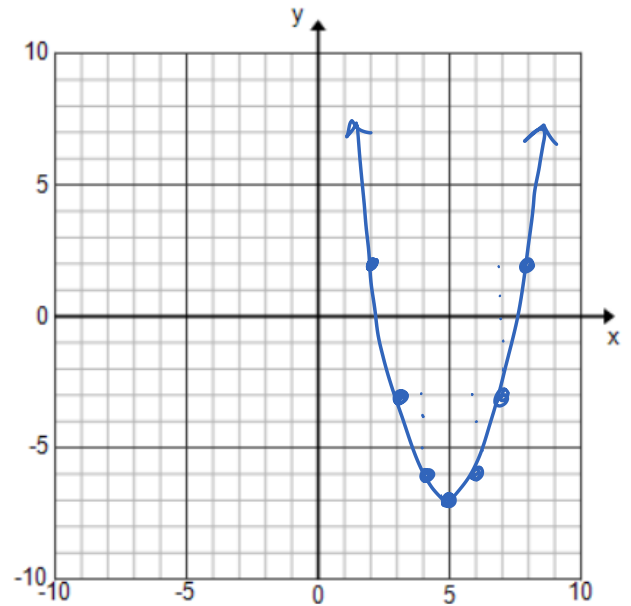
$$\frac{10}{2(1)} = 5$$

Vertex: (5, -7)

Axis of Symmetry: $x = 5$

y-intercept: (0, 18)

Opens Up or Down: up



STATION 8

Graph the function: $y = -2x^2 + 16x - 22$

Vertex: (4, 10)

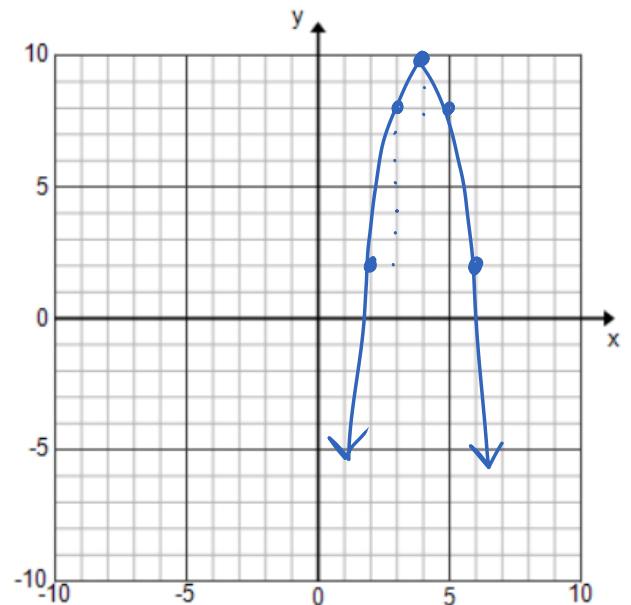
$$\frac{-16}{2(-2)} = \frac{-16}{-4} = 4$$

Axis of Symmetry: $x = 4$

y-intercept: (0, -22)

Opens Up or Down: down

Pattern: $-2, -6, -10$



STATION 9

Graph the function: $y = 3x^2 + 6x - 3$

Vertex: (-1, -6)

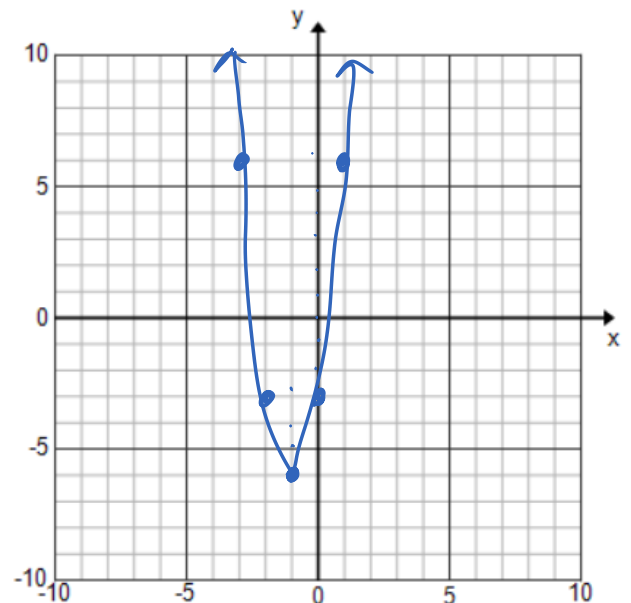
$$\frac{-6}{2(3)} = \frac{-6}{6} = -1$$

Axis of Symmetry: $x = -1$

y-intercept: (0, -3)

Opens Up or Down: up

Pattern: $(1, 3, 5) \times 3 = 3, 9, 15$



STATION 10

Graph the function: $y = -x^2 + 8x - 6$

Vertex: (4, 10)

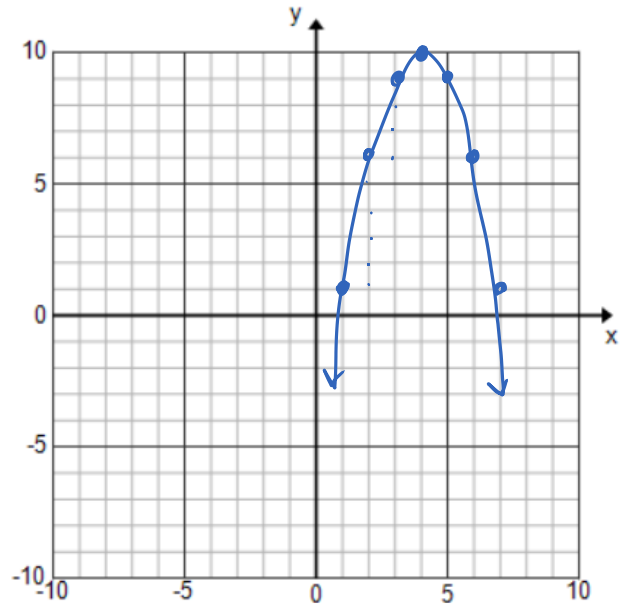
$$\frac{8}{2(-1)} = \frac{-8}{-2} = 4$$

Axis of Symmetry: $x = 4$

y-intercept: (0, -6)

Opens Up or Down: down

Pattern: -1, -3, -5



STATION 11

Graph the function: $y = x^2 + 4x + 4$

Vertex: (-2, 0)

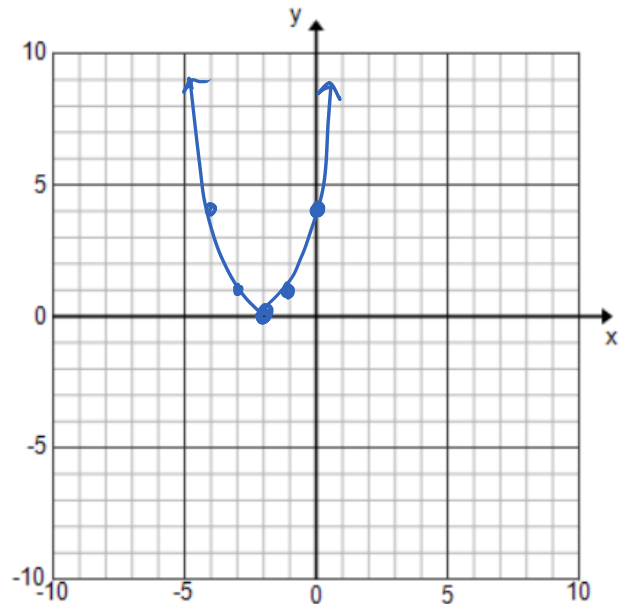
$$\frac{-4}{2} = -2$$

Axis of Symmetry: $x = -2$

y-intercept: (0, 4)

$$\begin{aligned} (-2)^2 + 4(-2) + 4 \\ 4 - 8 + 4 \\ -4 + 4 \\ 0 \end{aligned}$$

Opens Up or Down: up



STATION 12

Graph the function: $y = x^2 - 6x + 5$

Vertex: (3, -4)

$$\frac{6}{2} = 3$$

Axis of Symmetry: $x = 3$

y-intercept: (0, 5)

$$\begin{aligned} (3)^2 - 6(3) + 5 \\ 9 - 18 + 5 \\ -9 + 5 \\ -4 \end{aligned}$$

Opens Up or Down: up

