

Graphing Quadratic Functions

Bell Work:

1. Multiply $(2m - 5)(m + 9)$.

2. Multiply $(3a^3b)(-5ab^2)(2a^4b^3)$.

3. What is the chart to find the points of a parabola?

4. What is the equation for the quadratic parent function?

Graphing Quadratic Functions

Graph the quadratic function.

1. $f(x) = x^2 + 8x + 15$

This is standard form. It is more difficult to find the vertex.

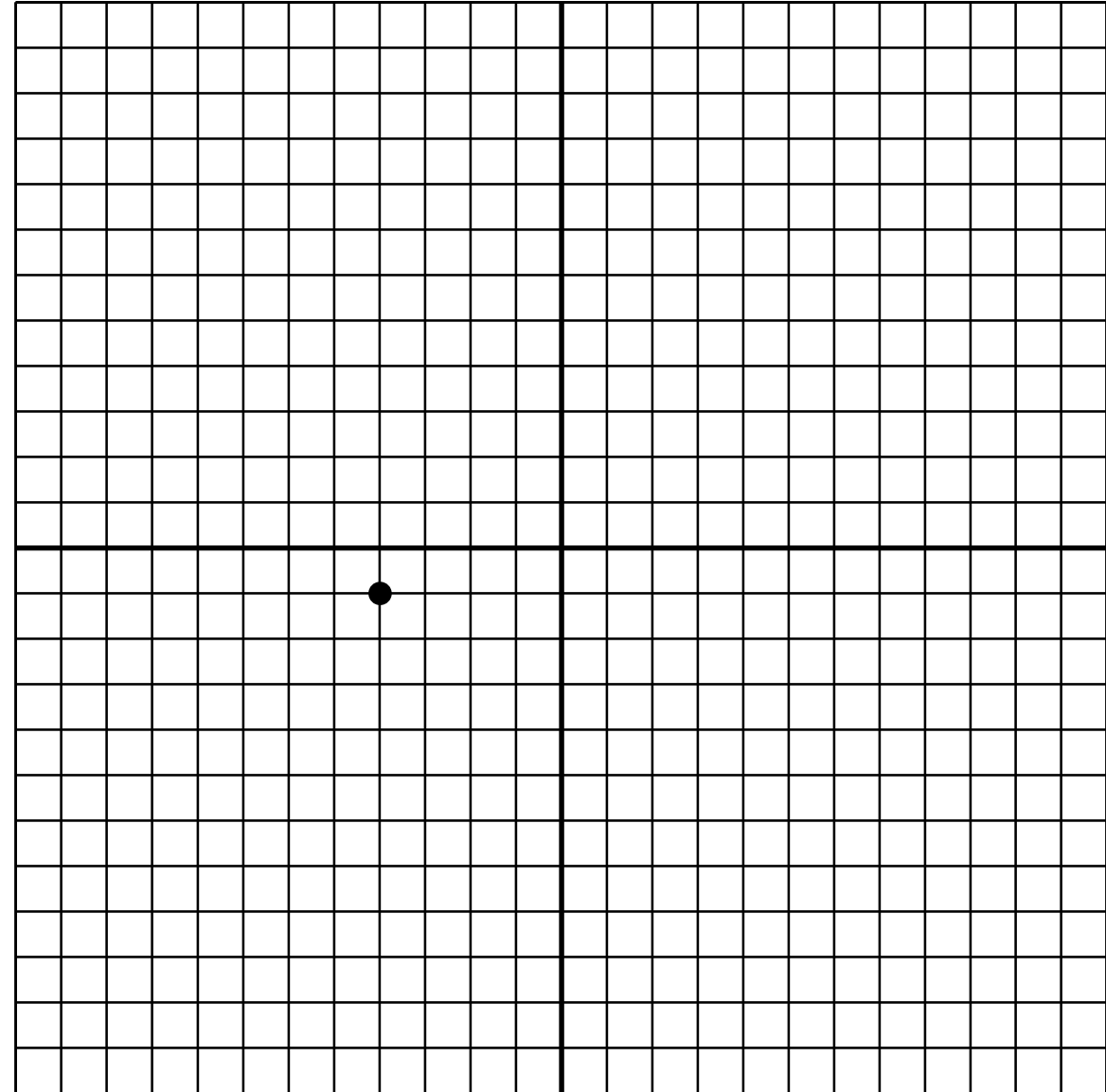
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

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

$$y = (-4)^2 + 8(-4) + 15$$

$$y = 16 - 32 + 15 = -1$$

Vertex:
(-4, -1)



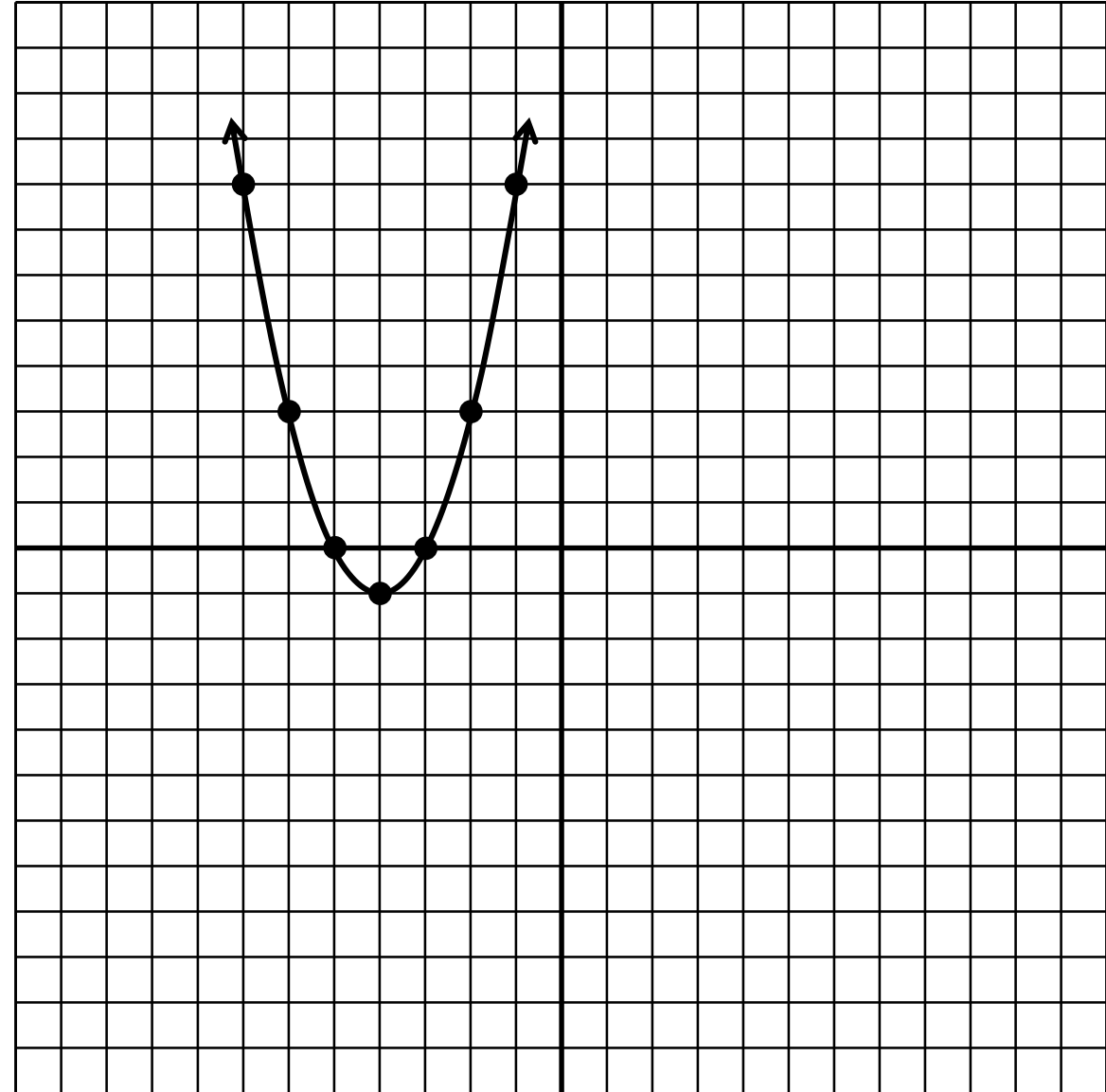
Graphing Quadratic Functions

Graph the quadratic function.

1. $f(x) = x^2 + 8x + 15$

Use the parabola table to find the other points.

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Graph the quadratic function.

2. $f(x) = x^2 - 12x + 30$

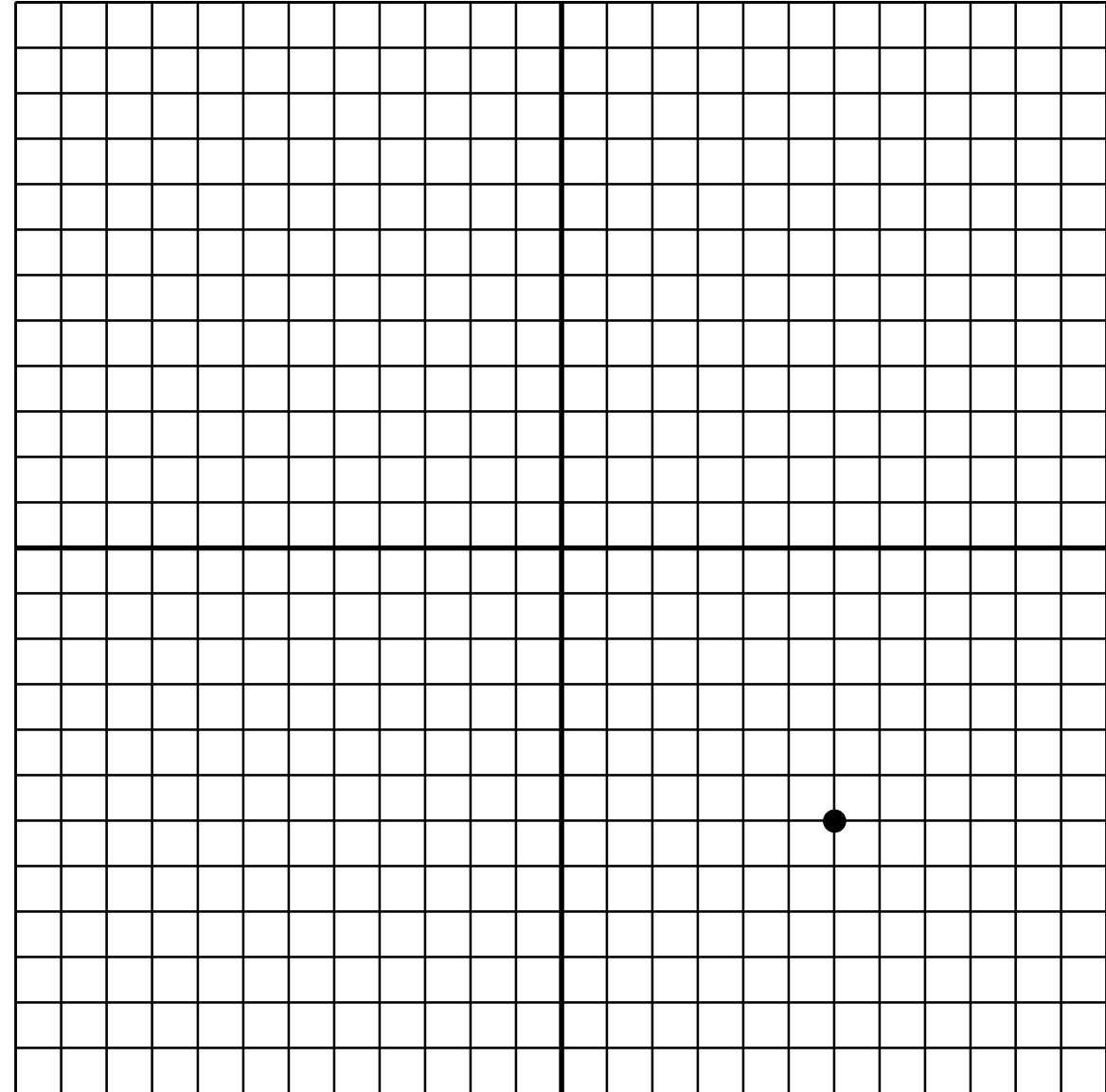
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

$$x = -\frac{b}{2a} = -\frac{-12}{2(1)} = 6$$

$$y = (6)^2 - 12(6) + 30$$

$$y = 36 - 72 + 30 = -6$$

Vertex:
(6, -6)

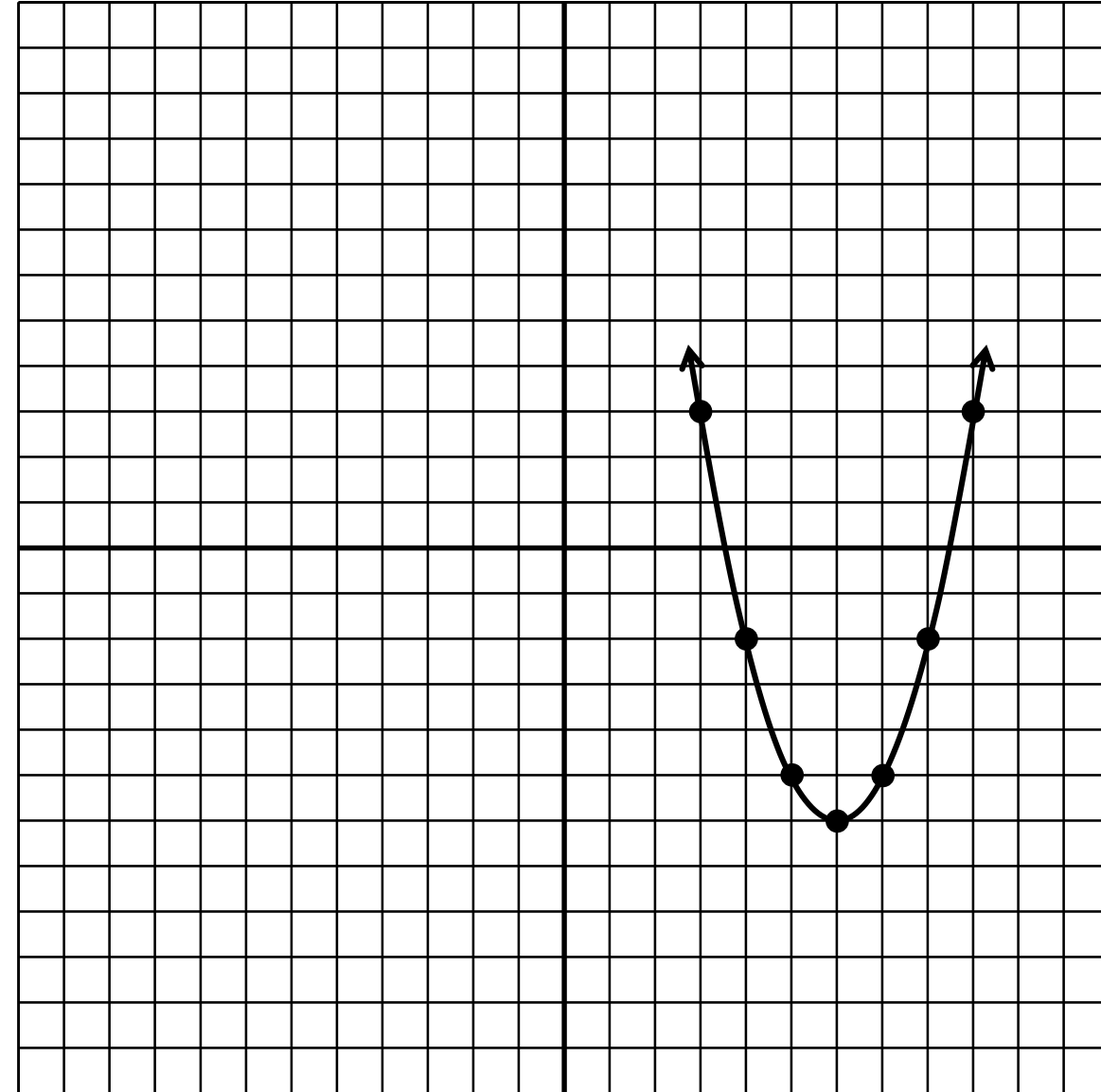


Graphing Quadratic Functions

Graph the quadratic function.

2. $f(x) = x^2 - 12x + 30$

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Graph the quadratic function.

3. $f(x) = x^2 - 4x - 1$

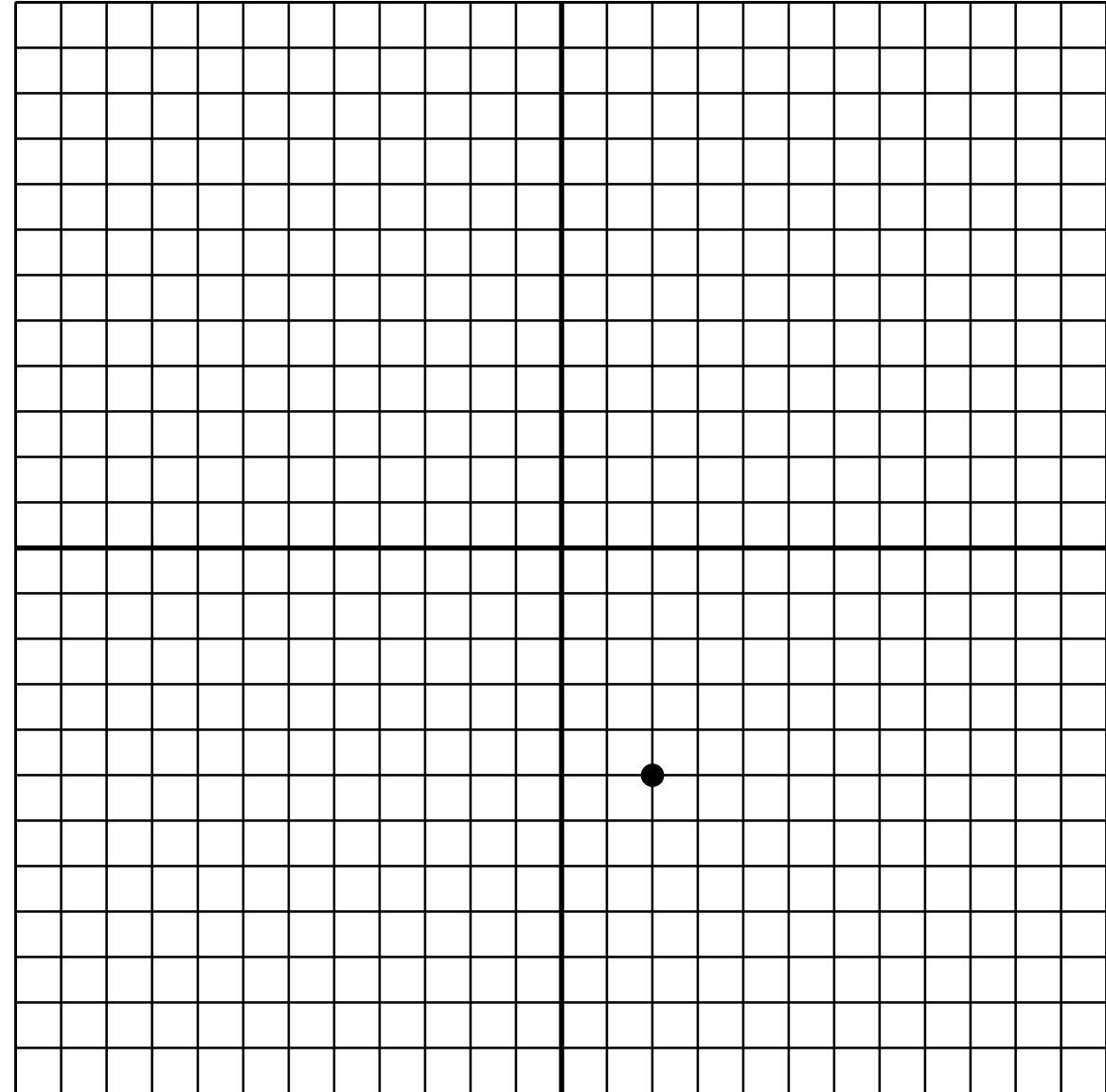
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

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

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

$$y = 4 - 8 - 1 = -5$$

Vertex:
(2, -5)

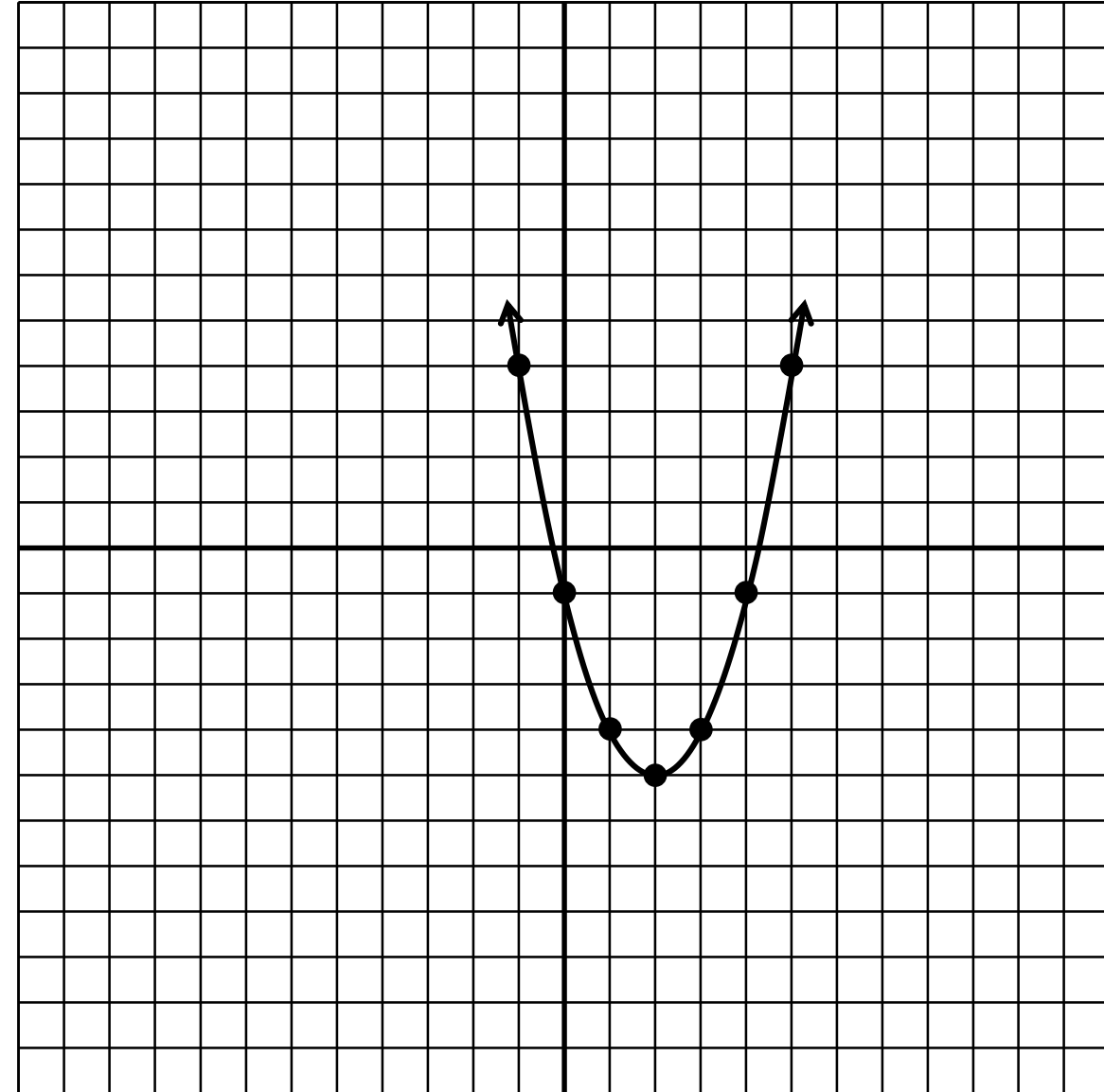


Graphing Quadratic Functions

Graph the quadratic function.

3. $f(x) = x^2 - 4x - 1$

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Graph the quadratic function.

4. $f(x) = -x^2 + 10x - 17$

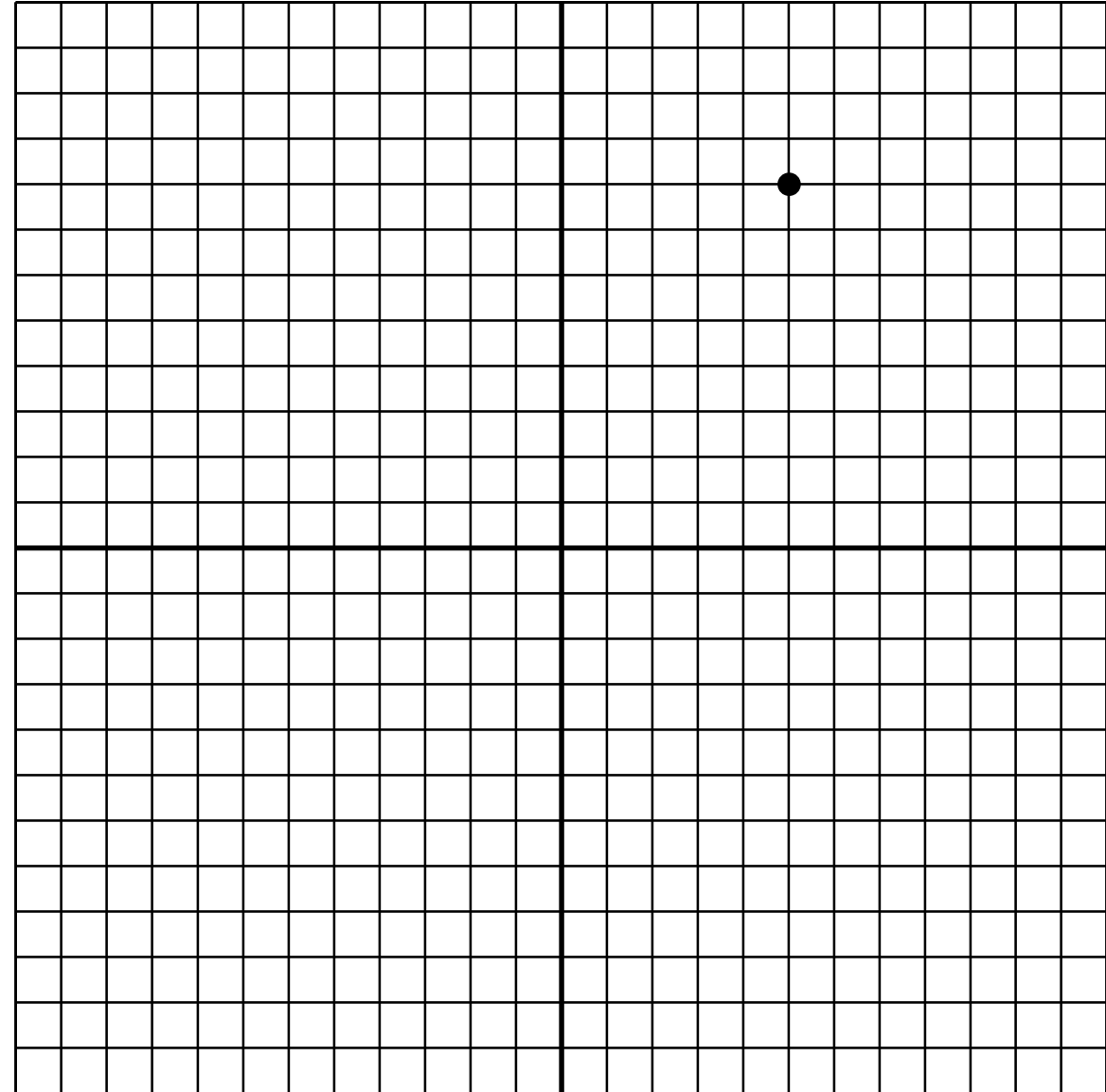
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

$$x = -\frac{b}{2a} = -\frac{10}{2(-1)} = 5$$

$$y = -(5)^2 + 10(5) - 17$$

$$y = -25 + 50 - 17 = 8$$

Vertex:
(5, 8)

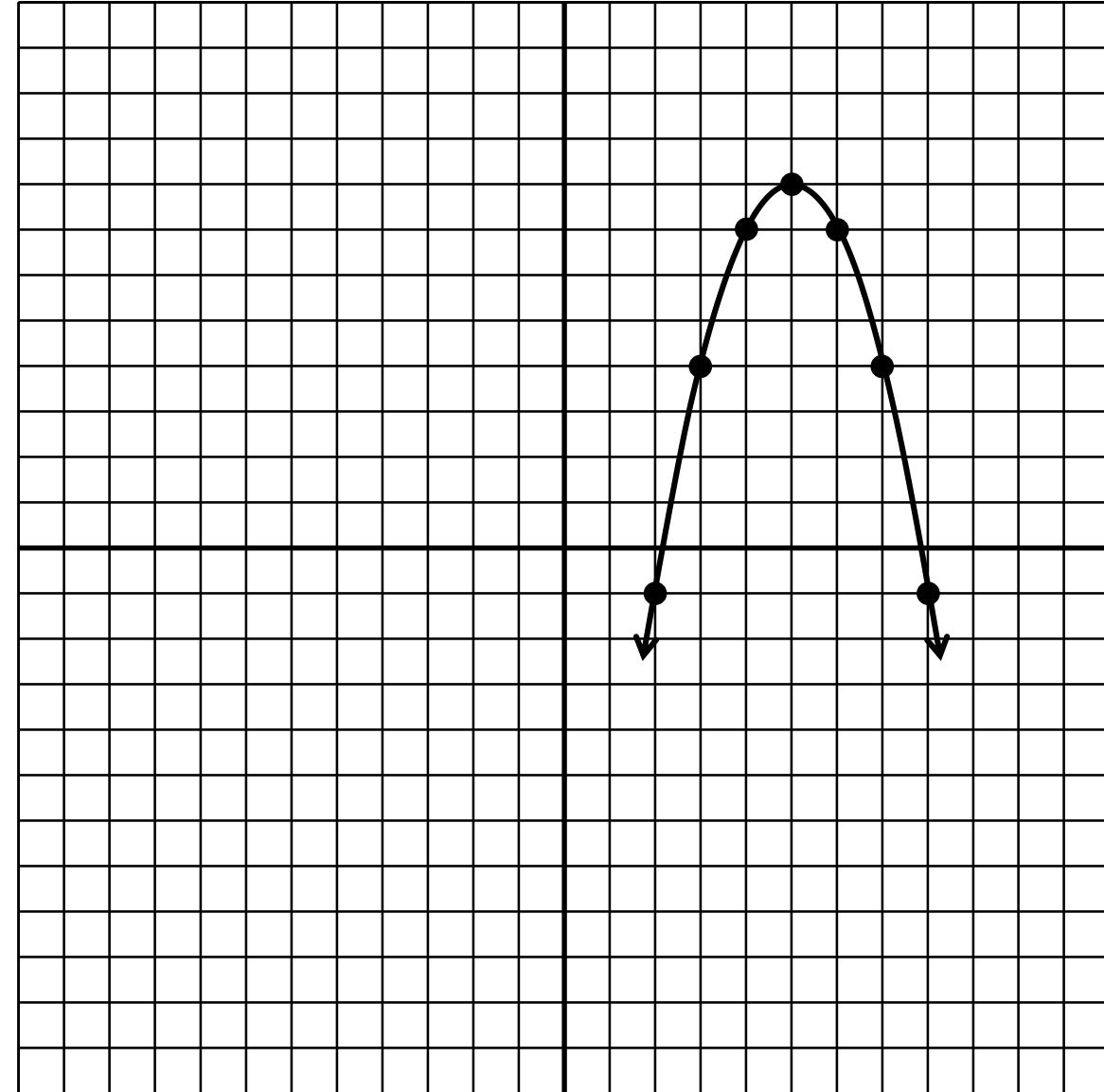


Graphing Quadratic Functions

Graph the quadratic function.

4. $f(x) = -x^2 + 10x - 17$

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Graph the quadratic function.

5. $f(x) = -x^2 - 12x - 26$

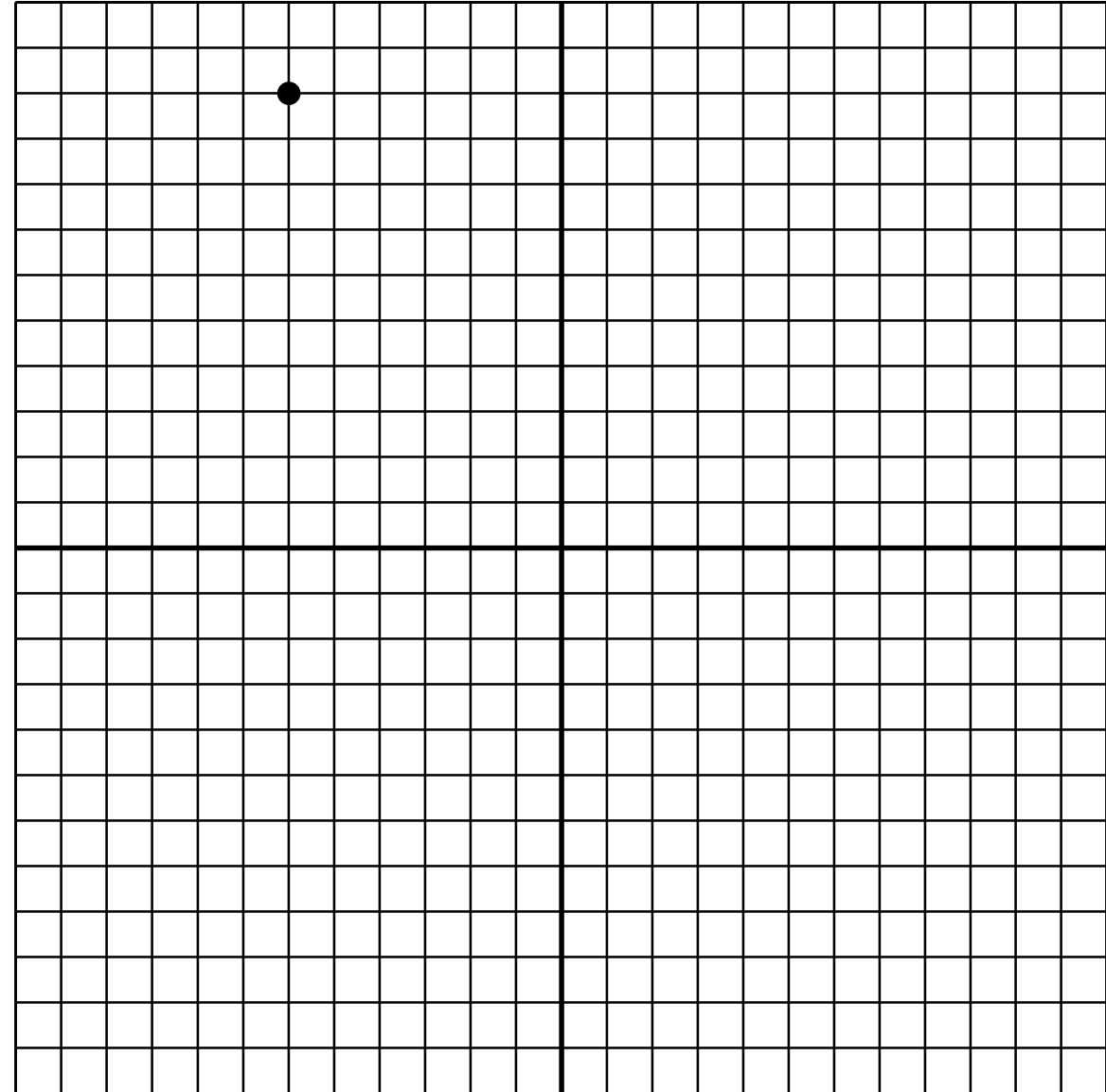
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

$$x = -\frac{b}{2a} = -\frac{-12}{2(-1)} = -6$$

$$y = -(-6)^2 - 12(-6) - 26$$

$$y = -36 + 72 - 26 = 10$$

Vertex:
(-6, 10)

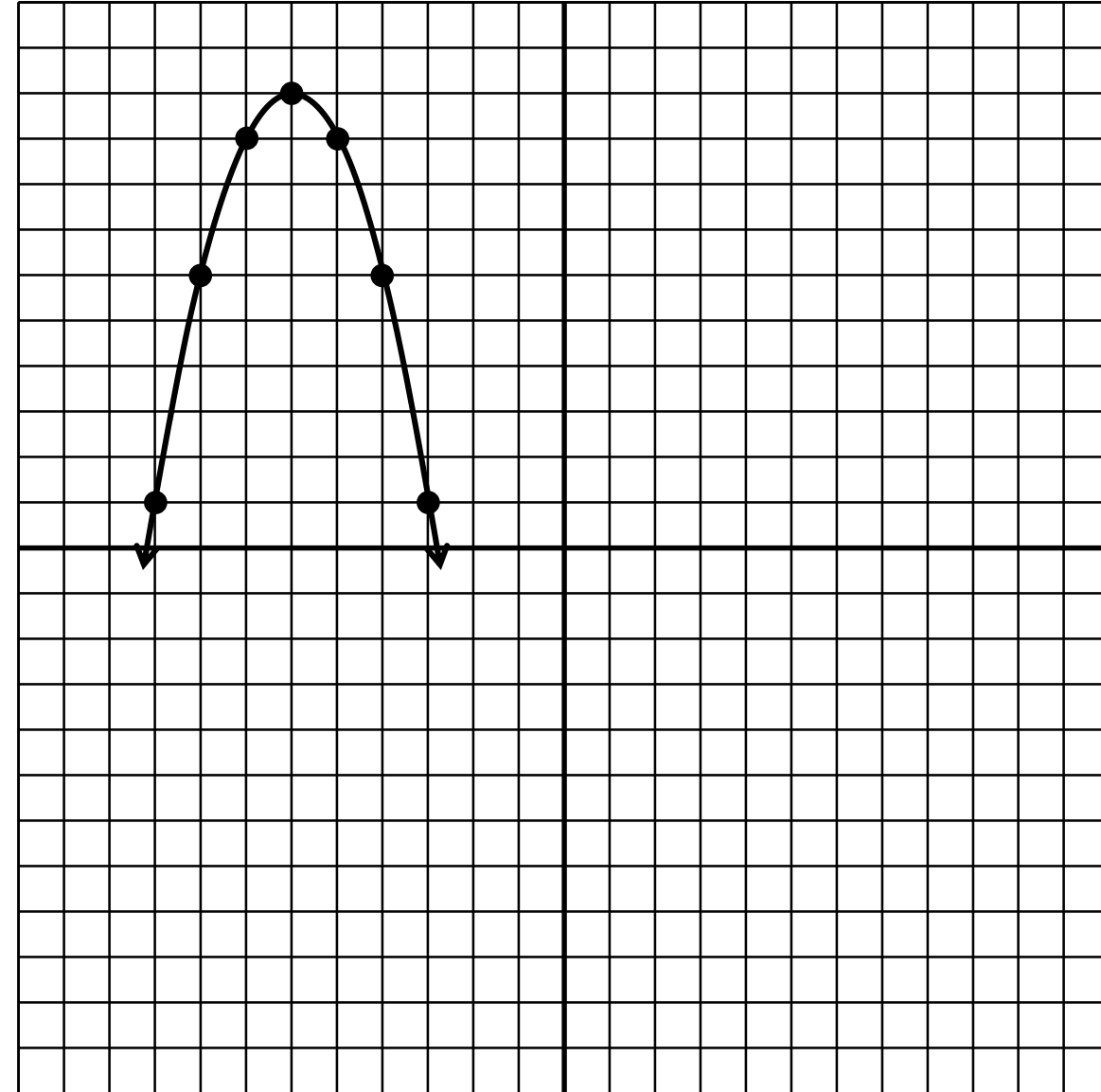


Graphing Quadratic Functions

Graph the quadratic function.

5. $f(x) = -x^2 - 12x - 26$

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Graph the quadratic function.

6. $f(x) = -x^2 + 2x - 2$

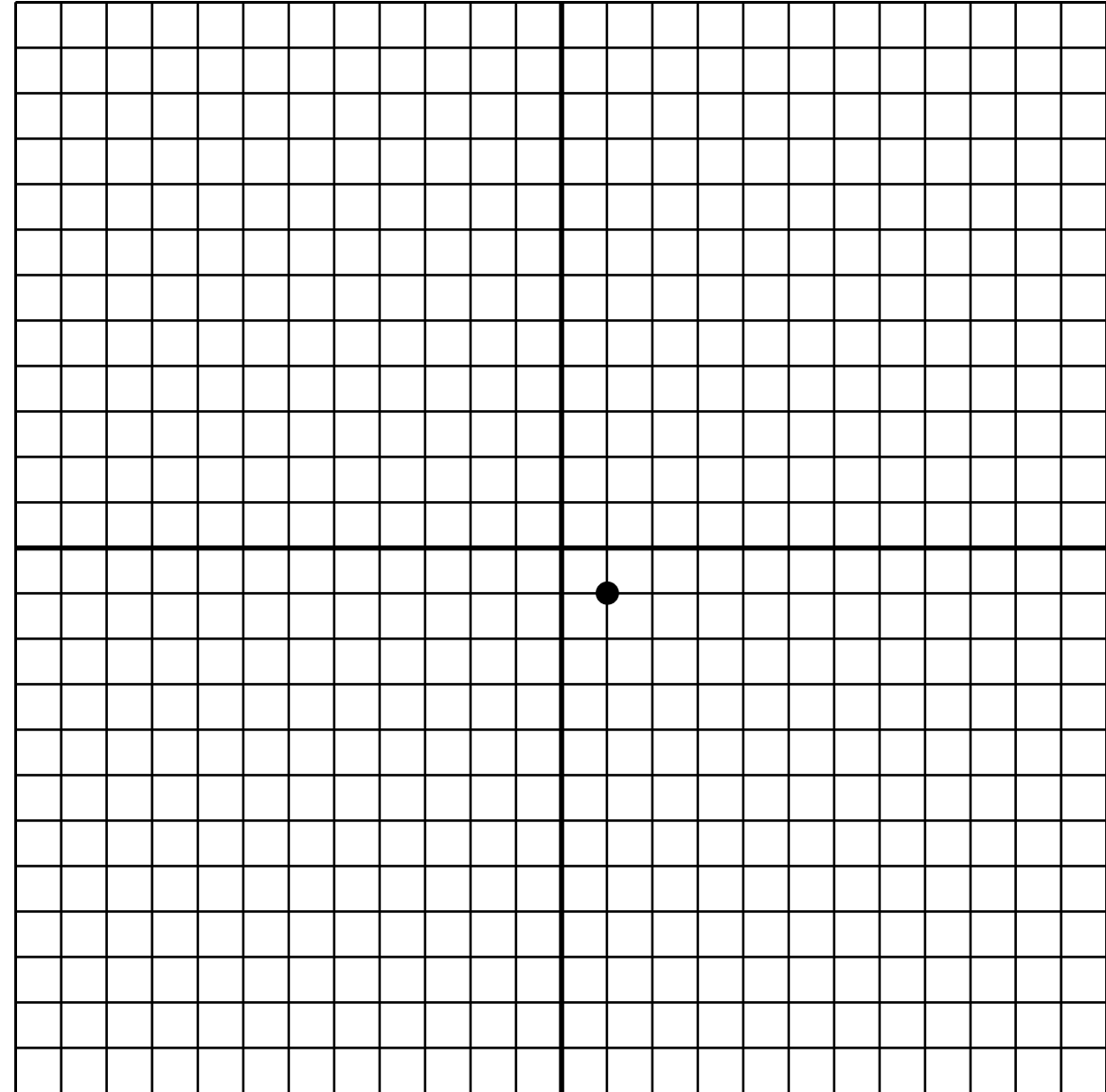
$$x = -\frac{b}{2a} \text{ where } f(x) = ax^2 + bx + c$$

$$x = -\frac{b}{2a} = -\frac{2}{2(-1)} = 1$$

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

$$y = -1 + 2 - 2 = -1$$

Vertex:
(1, -1)

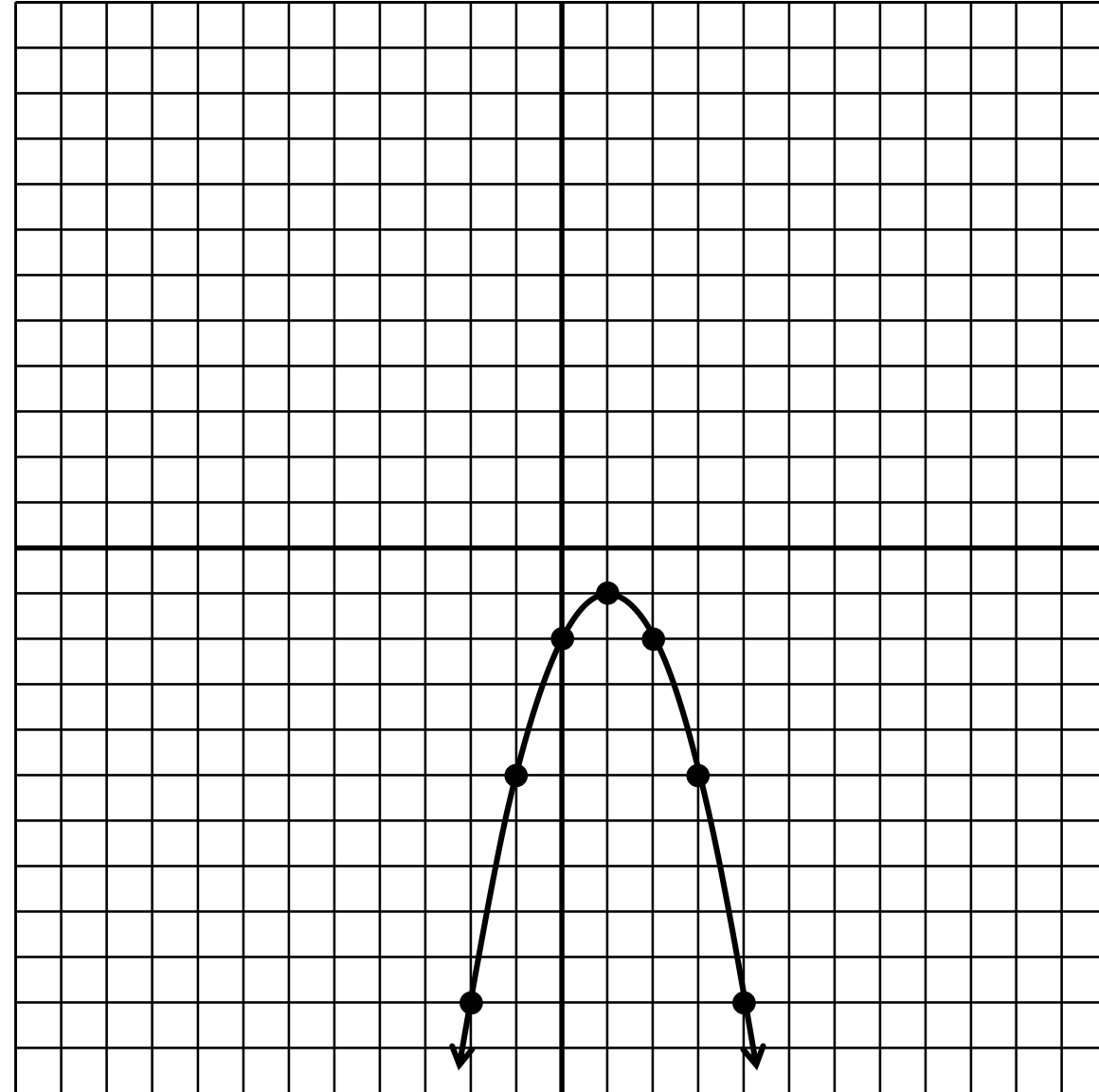


Graphing Quadratic Functions

Graph the quadratic function.

6. $f(x) = -x^2 + 2x - 2$

<i>Left & Right</i>	<i>Up & Down</i>
1	1
2	4
3	9



Graphing Quadratic Functions

Assignment:

Fluency Practice: Graphing Quadratic Functions in Standard Form Worksheet