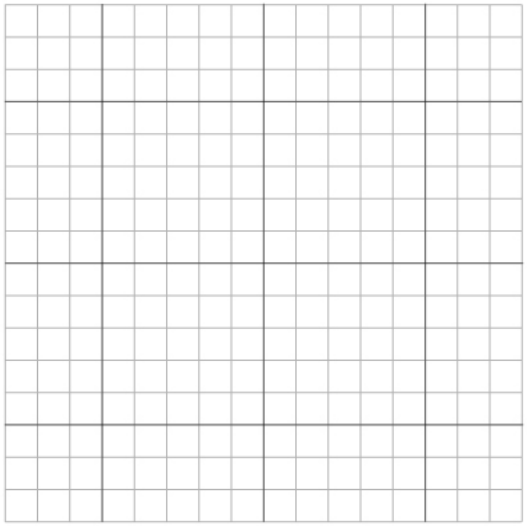
Graphing Quadratics from Standard Form

Find the vertex, x-intercept, y-intercept, domain, range, and maximum/minimum of the given quadratic equations in the standard form and then draw the graph.

1. $y = x^2 + 2x + 1$



Vertex: y-intercept:

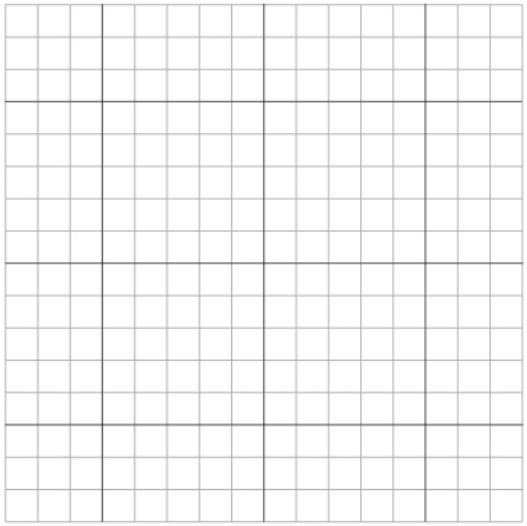
x-intercept:

Maximum/Minimum:

Domain:

Range:

2. $y = 2x^2 - 2x - 5$



Vertex: y-intercept:

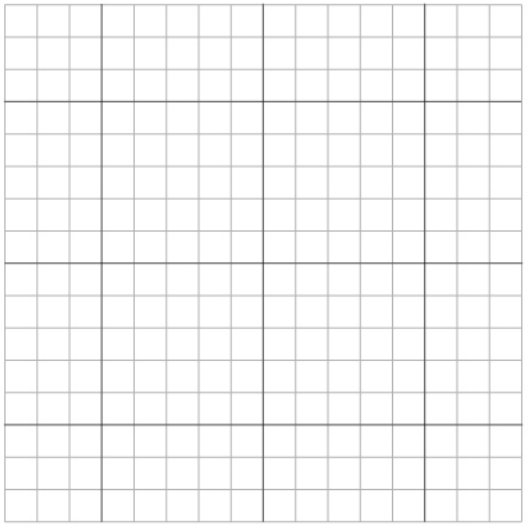
x-intercept:

Maximum/Minimum:

Domain:

Range:

3. $y = -x^2 - 6x - 4$



Vertex: y-intercept:

x-intercept:

Maximum/Minimum:

Domain:

Range:

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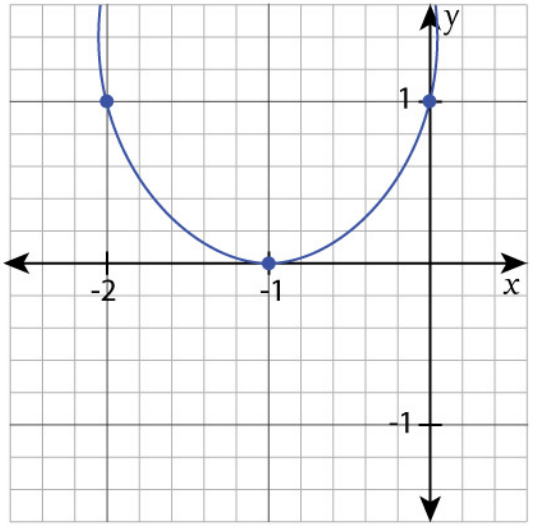
Answers

1 $y = x^2 + 2x + 1$



Vertex: (-1, 0) y-intercept: (0, 1)

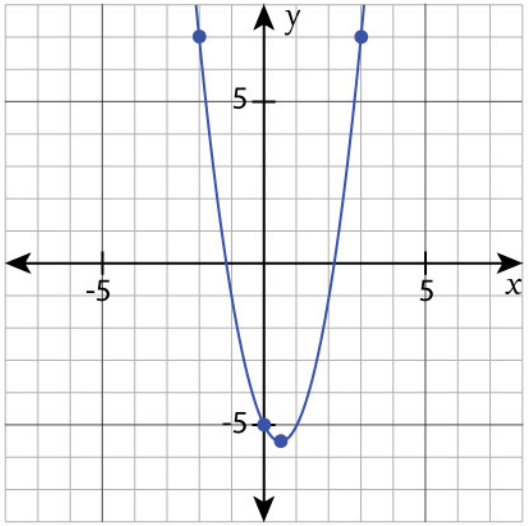
x-intercept: (-1, 0)

Maximum/Minimum: Minimum

Domain: Solution: $-\infty < x < \infty$; Interval notation: $(-\infty, \infty)$

Range: Solution: $f(x) \geq 0$; Interval notation: $(0, \infty)$

2 $y = 2x^2 - 2x - 5$



Vertex: $\left(\frac{1}{2}, -\frac{11}{2}\right)$ y-intercept: (0, -5)

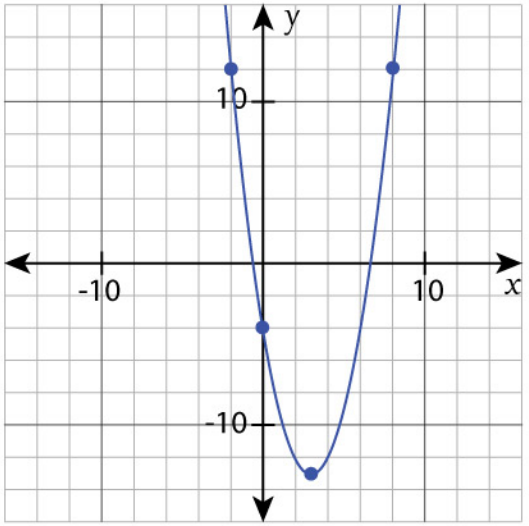
x-intercept: $\left(\frac{1+\sqrt{11}}{2}, 0\right), \left(\frac{1-\sqrt{11}}{2}, 0\right)$

Maximum/Minimum: Minimum

Domain: Solution: $-\infty < x < \infty$; Interval notation: $(-\infty, \infty)$

Range: Solution: $f(x) \geq -\frac{11}{2}$; Interval notation: $\left(-\frac{11}{2}, \infty\right)$

3 $y = -x^2 - 6x - 4$



Vertex: (3, -13) y-intercept: (0, -4)

x-intercept: $(3 + \sqrt{13}, 0)$

Maximum/Minimum: Minimum

Domain: Solution: $-\infty < x < \infty$; Interval notation: $(-\infty, \infty)$

Range: Solution: $f(x) \geq -13$; Interval notation: $[-13, \infty)$