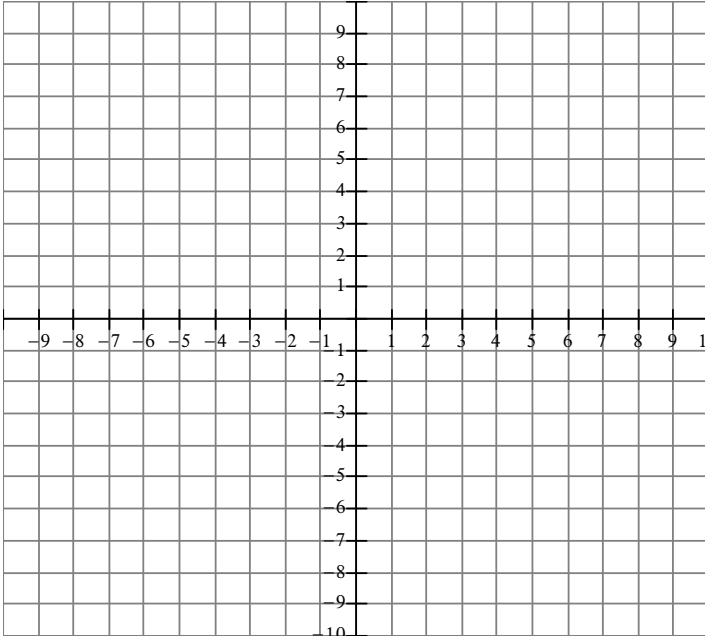


Chapter 3 Quadratic Functions Assignment

1. Graph each equation and then answer the given questions.

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



Vertex: _____

Axis of Symmetry: _____

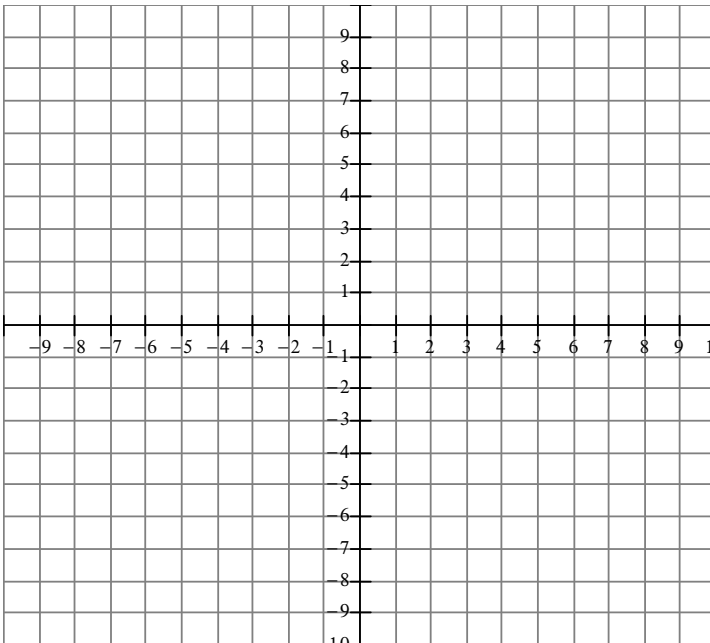
Direction of Opening: _____

Max or Min: _____

Domain: _____

Range: _____

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



Vertex: _____

Axis of Symmetry: _____

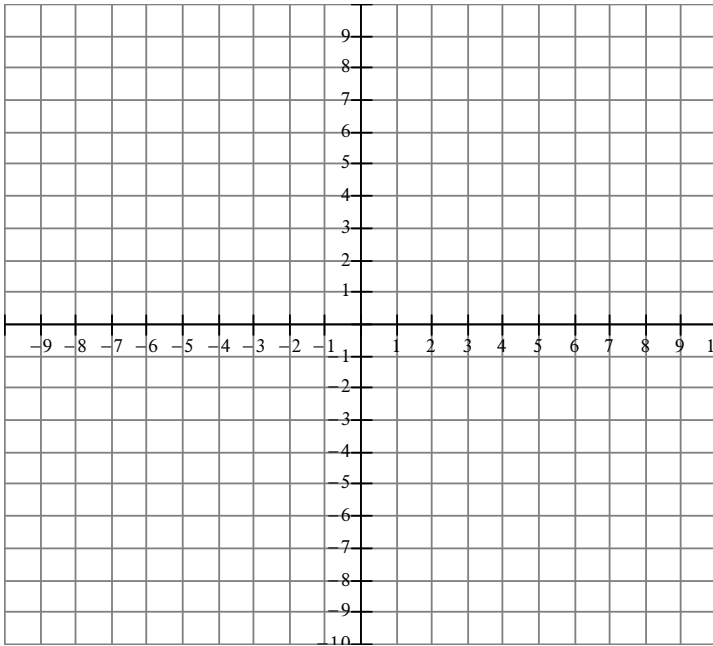
Direction of Opening: _____

Max or Min: _____

Domain: _____

Range: _____

(c) $y = -(x + 6)^2 + 3$



Vertex: _____

Axis of Symmetry: _____

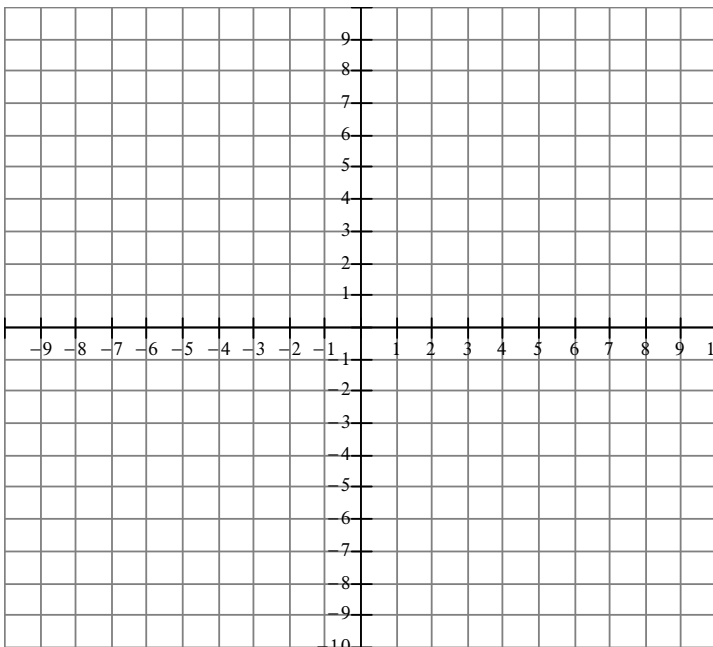
Direction of opening: _____

Max or Min: _____

Domain: _____

Range: _____

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



Vertex: _____

Axis of symmetry: _____

Direction of Opening: _____

Max or min: _____

Domain: _____

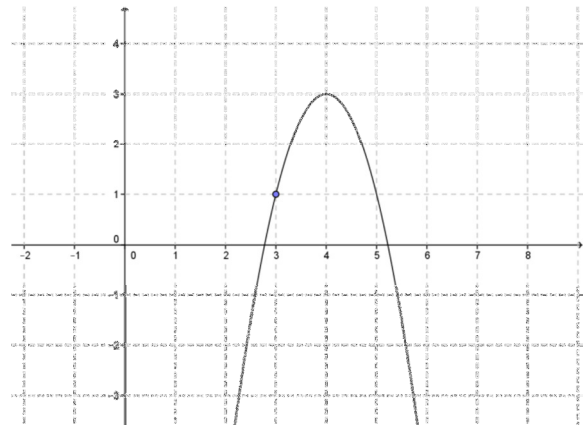
Range: _____

2. Write the equation of the quadratic in vertex form given the following.

(a) Vertex $(0, 3)$ passing through the point $(-1, 2)$

(b) Vertex $(-5, -2)$ passing through the point $(-3, 0)$

(c) Given the graph



3. Express each equation in vertex form. No decimals allowed.

(a) $y = x^2 - 6x + 8$

6. The parabolic path of an aircraft used to simulate weightlessness can be represented by the quadratic equation: $h(t) = -10t^2 + 300t + 9750$ where $h(t)$ is the altitude of the aircraft, in meters, and t is time, in seconds, since weightlessness was achieved. Find:

a) the maximum altitude reached by the aircraft

b) the number of seconds the aircraft takes to reach its maximum altitude after weightlessness is achieved.

c) the altitude of the aircraft when weightlessness is first achieved

d) the number of seconds the simulation of weightlessness lasts if weightlessness is lost at the same altitude as it is achieved.

7. An amusement park charges \$8 admission and averages 2000 visitors per day. A survey shows that for each \$1 increase in admission cost, 100 fewer people would visit the park.

a) Write an equation to express the revenue, $R(x)$ dollars, in terms of a price increase of x dollars.

b) What admission cost gives the maximum revenue?

c) What is the maximum revenue?

d) How many visitors give the maximum revenue?

8. A rectangular field is bordered on one side by a river and the other 3 sides by 40 m of fencing. Find the dimensions of the lot and its maximum area.