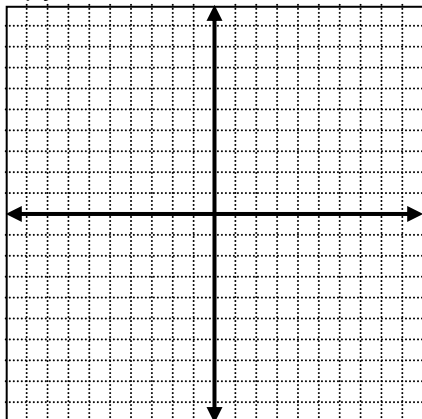


Write the quadratic in vertex form and identify the key parts of each quadratic and graph.

1) $f(x) = x^2 - 8x + 16$



Vertex Form: _____

Vertex: _____

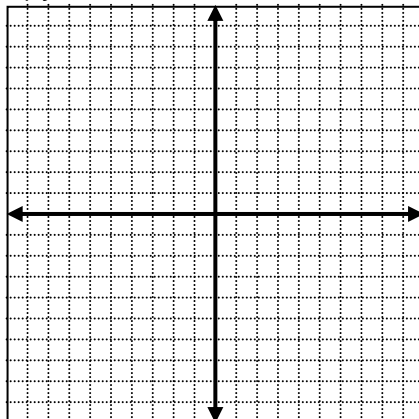
Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

2) $f(x) = x^2 - 8x + 21$



Vertex Form: _____

Vertex: _____

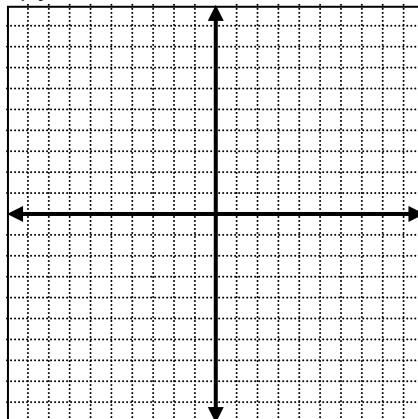
Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

3) $f(x) = -x^2 - 4x + 5$



Vertex Form: _____

Vertex: _____

Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

Convert each equation to vertex form and identify key parts.

4) $f(x) = 2x^2 - 4x + 1$

Vertex Form: _____

Vertex: _____

Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

5) $f(x) = x^2 - 8x + 11$

Vertex Form: _____

Vertex: _____

Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

6) $f(x) = -x^2 - 2x + 3$

Vertex Form: _____

Vertex: _____

Axis of Symmetry: _____

Min/Max: _____

y-intercept: _____

x-intercept: _____

Write the vertex form of the quadratic function with the given vertex and passes through the point.

7) Vertex: (2, 5)

8) Vertex: (1, - 2)

9) Vertex: (- 2, - 3)

Point: (0, 9)

Point: (- 1, 14)

Point: (-3, 7)

Find the roots of the function.

10) $5n^2 + 19n + 12 = f(n)$

11) $h(v) = 2v^2 + 11v + 5$

12) $g(x) = 3x^2 - 8x + 4$

13) The path of a diver is modeled by $f(x) = -\frac{4}{9}x^2 + \frac{24}{9}x + 12$ where $f(x)$ is the height (in feet) and x is the horizontal distance (in feet) from the end of the diving board. What is the maximum height of the diver?

14) The height of a punted football is modeled by $f(x) = -\frac{16}{2025}x^2 + \frac{9}{5}x + 1.5$.

a. How high is the ball when it is punted?

b. What is the maximum height of the punt?

c. How long is the punt?

15) A manufacturer of lighting fixtures has daily production costs of $C = 800 - 10x + 0.25x^2$, where C is the total cost (in dollars) and x is the number of units produced. What daily production number yields a minimum cost?

16) The total revenue R earned (in thousands of dollars) from manufacturing handheld video games is given by

$R(p) = -25p^2 + 1200p$, where p is the price per unit (in dollars).

a. Find the revenues when the prices per unit are \$20, \$25, and \$30.

b. Find the unit price that yields the maximum revenue. What is the maximum revenue?