

Algebra 2A
2.1

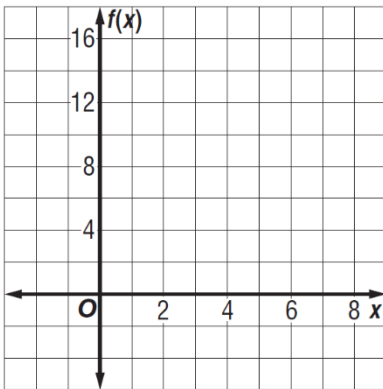
Name _____

Assignment

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

Axis of Symmetry: _____
 y-intercept: _____
 Opens up or down? _____
 Maximum or minimum? _____
 Value or max or min? _____
 Vertex: _____

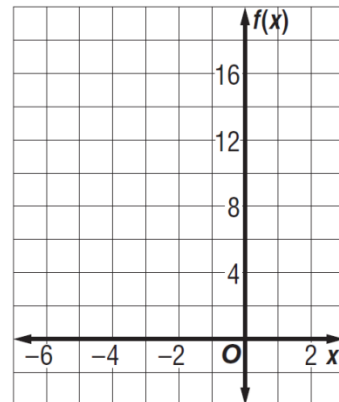
x					
f(x)					



2. $f(x) = -x^2 - 4x + 12$

Axis of Symmetry: _____
 y-intercept: _____
 Opens up or down? _____
 Maximum or minimum? _____
 Value or max or min? _____
 Vertex: _____

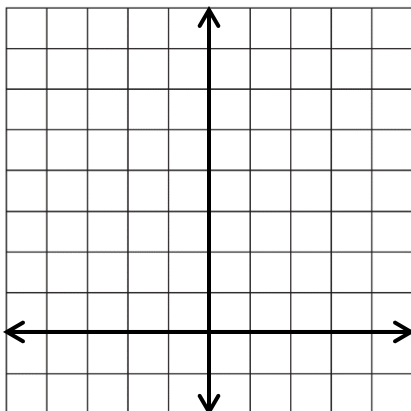
x					
f(x)					



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

Axis of Symmetry: _____
 y-intercept: _____
 Opens up or down? _____
 Maximum or minimum? _____
 Value or max or min? _____
 Vertex: _____

x					
f(x)					



Determine whether each function has a maximum or a minimum value. Then find the maximum or minimum value of each functions.

4. $f(x) = x^2 + 2x - 8$

Max/Min: _____

Value: _____

5. $f(x) = x^2 - 6x + 14$

Max/Min: _____

Value: _____

6. $f(x) = -x^2 + 14x - 57$

Max/Min: _____

Value: _____

7. $f(x) = 2x^2 + 4x - 6$

Max/Min: _____

Value: _____

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

Max/Min: _____

Value: _____

9. $f(x) = -\frac{2}{3}x^2 + 8x - 24$

Max/Min: _____

Value: _____

Assignment

Identify the vertex, axis of symmetry, and direction of opening for each quadratic function.

1. $y = -6(x+2)^2 - 1$

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

3. $y = -4x^2 + 8x$

4. $y = x^2 + 10x + 20$

5. $y = 2x^2 + 12x + 18$

6. $y = 3x^2 - 6x + 5$

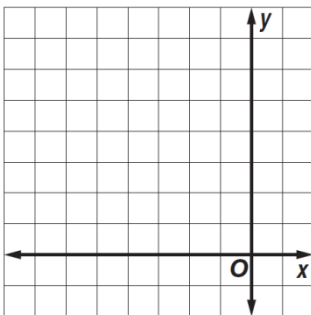
7. $y = -2x^2 - 16x - 32$

8. $y = -3x^2 + 18x - 21$

9. $y = 2x^2 + 16x + 29$

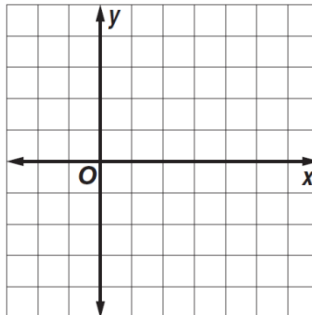
Graph each function.

10. $y = (x+3)^2 - 1$



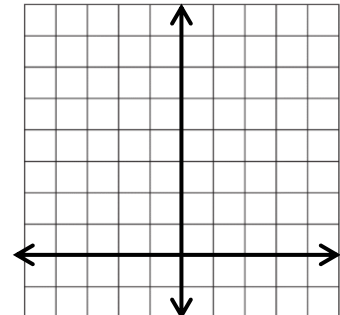
x					
$f(x)$					

11. $y = -x^2 + 6x - 5$



x					
$f(x)$					

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



x					
$f(x)$					

Write an equation for the parabola with the given vertex that passes through the given point.

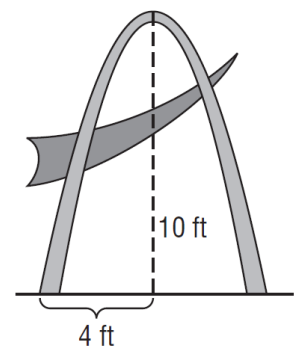
13. vertex: (1, 3)
point: (-2, -15)

14. vertex: (10, -4)
point: (5, 6)

15. vertex: (4, 4)
x-intercept 6

16. The height h of a baseball t seconds after being hit is given by $h(t) = -16t^2 + 80t + 3$. What is the maximum height that the baseball reaches, and when does this occur?

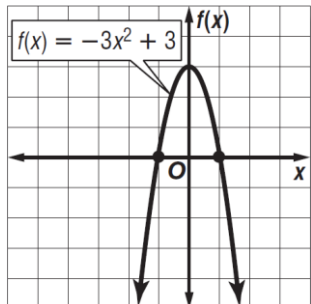
17. A modern sculpture in a park contains a parabolic arc that starts at the ground and reaches a maximum height of 10 feet after a horizontal distance of 4 feet. Write a quadratic function in vertex form that describes the shape of the outside of the arc, where y is the height of a point on the arc and x is its horizontal distance from the left-hand starting point of the arc.



Assignment

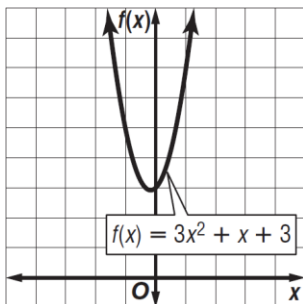
Use the related graph of each equation to determine its solutions.

1. $-3x^2 + 3 = 0$



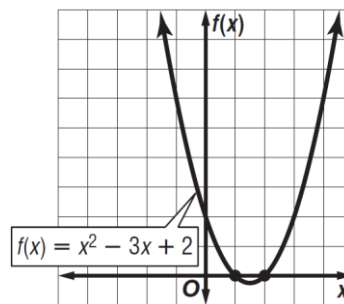
Exact roots: _____

2. $3x^2 + x + 3 = 0$



Exact roots: _____

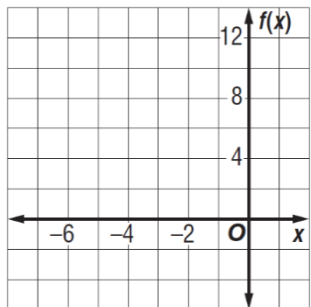
3. $x^2 - 3x + 2 = 0$



Exact roots: _____

Solve each equation by graphing. If exact roots cannot be found, state the consecutive integers between which the roots are located.

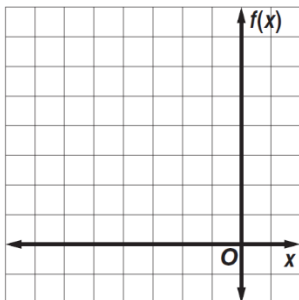
4. $-2x^2 - 6x + 5 = 0$



x					
f(x)					

Roots: _____

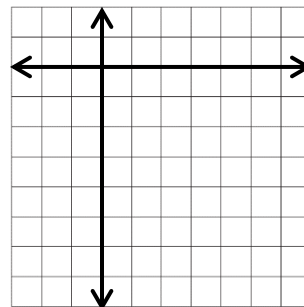
5. $x^2 + 10x + 24 = 0$



x					
f(x)					

Roots: _____

6. $2x^2 - x - 6 = 0$



x					
f(x)					

Roots: _____

Use a quadratic equation and your graphing calculator to find two real numbers that satisfy each situation, or show that no such numbers exist.

7. Their sum is 1 and their product is -6.

8. Their sum is 5 and their product is 8.

For #9 and 10, use the formula $h(t) = v_0 t - 16 t^2$, where $h(t)$, is the height of an object in feet, v_0 is the object's initial velocity in feet per second, and t is the time in seconds.

9. Kevin throws a baseball with an initial velocity of 60 feet per second. Ignoring Kevin's height, how long after he releases the ball will it hit the ground?

10. A volcanic eruption blasts a boulder upward with an initial velocity of 240 feet per second. How long will it take the boulder to hit the ground if it lands at the same elevation from which it was ejected?

11. From 4 feet above a swimming pool, Susan throws a ball upward with a velocity of 32 feet per second. The height $h(t)$ of the ball t seconds after Susan throws it is given by $h(t) = -16 t^2 + 32 t + 4$. Find the maximum height reached by the ball and the time that this height is reached.