

Name: _____

ID: A

Name: _____

ID: A

Write a quadratic equation with the given roots. Write the equation in the form $ax^2 + bx + c = 0$, where a , b , and c are integers.

9. -5 and 2
 a. $x^2 - 7x + 10 = 0$
 b. $x^2 + 7x + 10 = 0$
 c. $x^2 - 3x + 10 = 0$
 d. $x^2 + 3x - 10 = 0$
10. $\frac{5}{4}$ and 8
 a. $4x^2 - 27x - 40 = 0$
 b. $4x^2 + 27x + 40 = 0$
 c. $x^2 - 27x - 40 = 0$
 d. $x^2 - 27x + 40 = 0$

Solve the equation by factoring.

11. $x^2 + 3x - 28 = 0$
 a. $\{-4, 7\}$
 b. $\{-7, 4\}$
 c. $\{4, 7\}$
 d. $\{-4, -7\}$

Write the following quadratic function in vertex form. Then, identify the axis of symmetry.

12. $y = x^2 + 4x - 6$
 a. The vertex form of the function is $y = (x + 2)^2 - 10$.
 The equation of the axis of symmetry is $x = -2$.
 b. The vertex form of the function is $y = (x - 2)^2 - 10$.
 The equation of the axis of symmetry is $x = -2$.
 c. The vertex form of the function is $y = (x + 2)^2 - 10$.
 The equation of the axis of symmetry is $x = -10$.
 d. The vertex form of the function is $y = (x + 2)^2 + 10$.
 The equation of the axis of symmetry is $x = -10$.
13. $y = -3x^2 + 48x$
 a. The vertex form of the function is $y = 3(x + 8)^2 + 192$.
 The equation of the axis of symmetry is $x = -192$.
 b. The vertex form of the function is $y = (x + 192)^2 + 8$.
 The equation of the axis of symmetry is $x = -8$.
 c. The vertex form of the function is $y = -3(x - 8)^2 + 192$.
 The equation of the axis of symmetry is $x = 8$.
 d. The vertex form of the function is $y = -3(x + 8)^2 + 192$.
 The equation of the axis of symmetry is $x = 192$.

Short Answer

14. The height of a pebble dropped from a cliff 604 feet high is described by the formula $h(t) = 604 - 16t^2$. How long will the pebble take to reach a height of 348 feet?
15. A rocket is launched with an initial velocity of 107 feet per second from the top of a cliff 63 feet high. Its height is described by $h(t) = -16t^2 + 107t + 63$. How long will the rocket take to hit the ground?
16. A rocket is fired with a velocity of 60 m/s at a vertical angle of 30 degrees. The equation $h(t) = 30t - 4.9t^2$ gives the height of the rocket at t seconds after the launch. Will the rocket ever reach a height of 50 meters? Explain your reasoning.

17. A rock is thrown skyward from a cliff. The vertical distance in feet between the ground and the rock t seconds after it is thrown can be determined by the equation $d(t) = -16t^2 - 6t + 482$. How long will the rock take to hit the ground?

Essay

18. A baseball is hit by a batter. The function $h(t) = -16t^2 + 130t + 4$ models the ball's height above the ground, $h(t)$, in feet, t seconds after it was hit. Describe how the ball's height above the ground is related to time. Find how long will it take the ball to strike the ground.

Name: _____

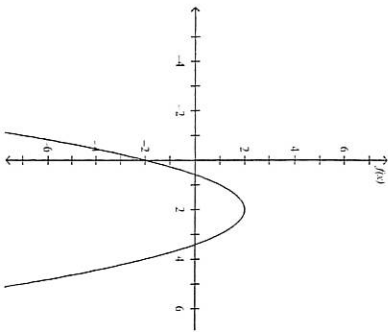
ID: A

Name: _____

ID: A

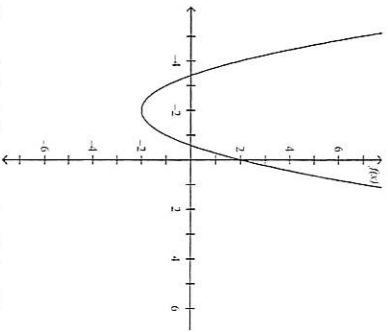
7. $x^2 + 4x + 2 = 0$

a.



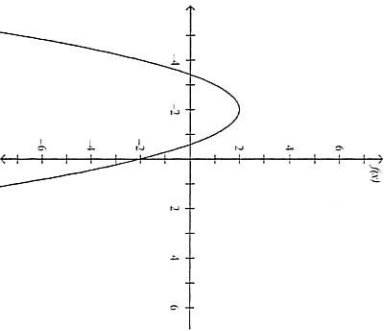
One solution is between 3 and 4, while the other solution is between 0 and 1.

b.



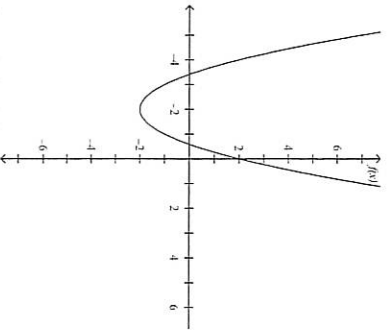
One solution is between -3 and -1, while the other solution is between 0 and -4.

c.



One solution is between -3 and 0, while the other solution is between -4 and -1.

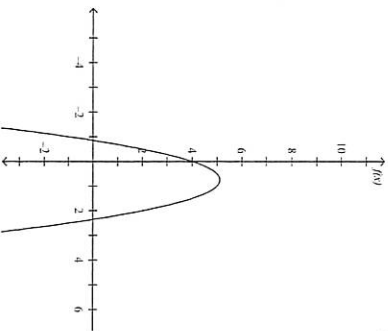
d.



One solution is between -3 and -4, while the other solution is between 0 and -1.

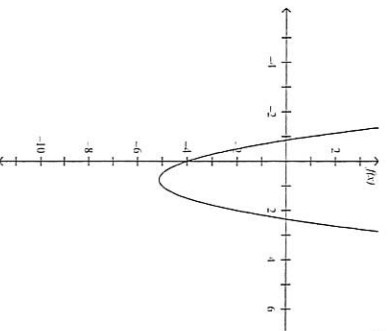
8. $-2x^2 + 3x + 4 = 0$

a.



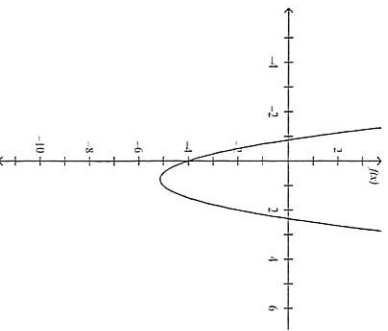
One solution is between 2 and -1, while the other solution is between 0 and 3.

b.



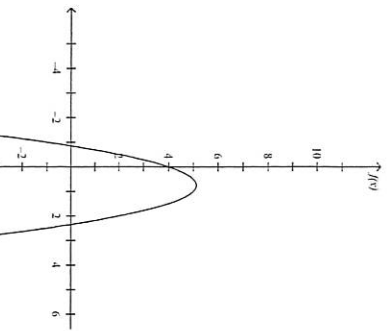
One solution is between 2 and 0, while the other solution is between 3 and -1.

c.



One solution is between -2 and -3, while the other solution is between 0 and 1.

d.



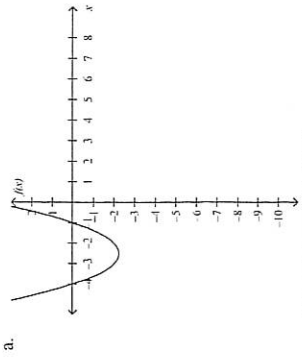
One solution is between 0 and -1, while the other solution is between 2 and 3.

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

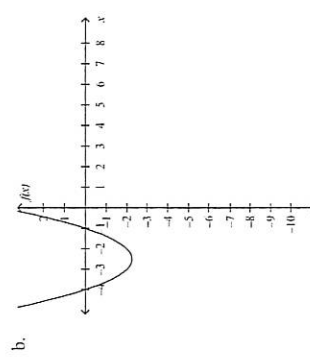
- a. The function has a minimum value. The minimum value of the function is 8.
- b. The function has a minimum value. The minimum value of the function is 4.
- c. The function has a maximum value. The maximum value of the function is 4.
- d. The function has a maximum value. The maximum value of the function is 8.

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

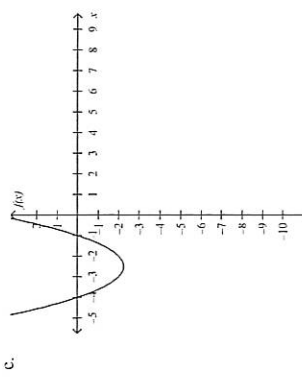
5. $x^2 + 5x + 4 = 0$



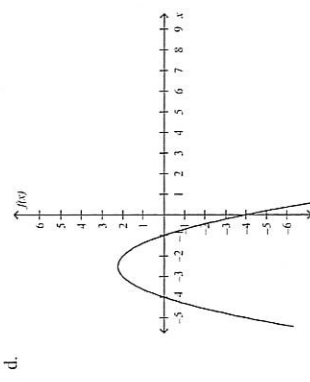
The solution set is $\{-4, -1\}$.



The solution set is $\{-4, -1\}$.

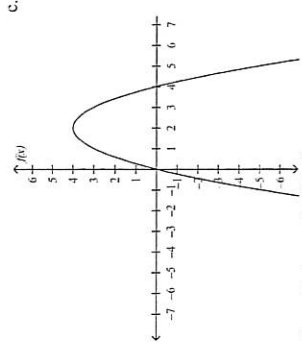


The solution set is $\{-2.5, -2.25\}$.

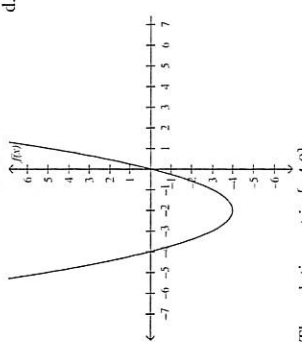


The solution set is $\{1, 4\}$.

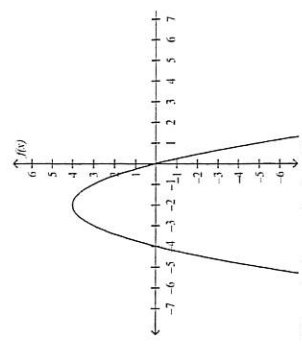
6. $-x^2 + 4x = 0$



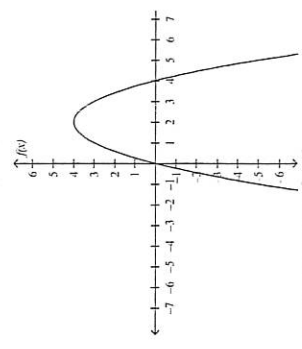
The solution set is $\{0, 4\}$.



The solution set is $\{-4, 0\}$.



The solution set is $\{-4, 0\}$.



The solution set is $\{2, 4\}$.

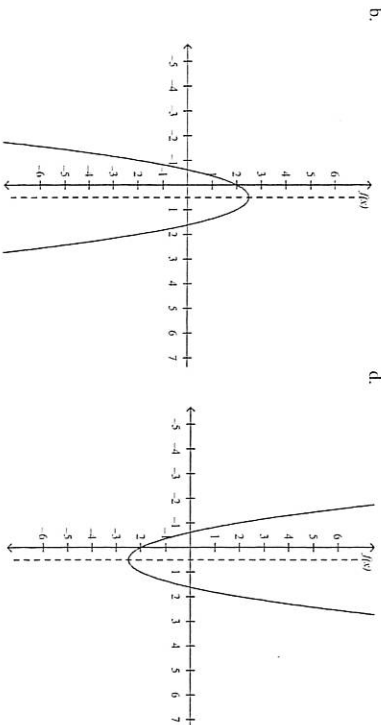
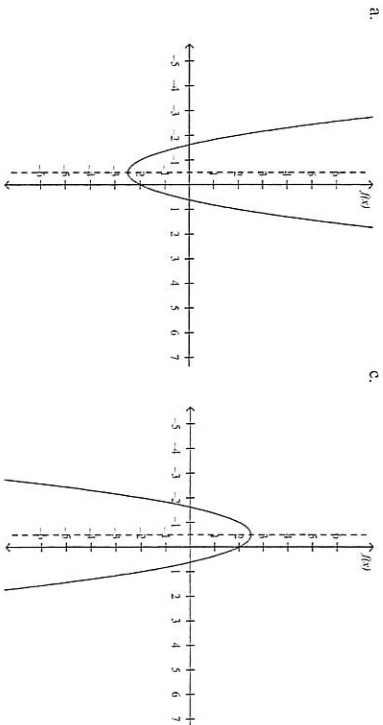
Quadratic Functions (Chapter 5) Review

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Consider the quadratic function $f(x) = -2x^2 + 2x + 2$. Find the y-intercept and the equation of the axis of symmetry.
- The y-intercept is -2 .
The equation of the axis of symmetry is $x = -\frac{1}{2}$.
 - The y-intercept is $\frac{1}{2}$.
The equation of the axis of symmetry is $x = 2$.
 - The y-intercept is $+2$.
The equation of the axis of symmetry is $x = \frac{1}{2}$.
 - The y-intercept is $-\frac{1}{2}$.
The equation of the axis of symmetry is $x = -2$.

- _____ 2. Graph the quadratic function $f(x) = -2x^2 + 2x + 2$.



Determine whether the given function has a maximum or a minimum value. Then, find the maximum or minimum value of the function.

- _____ 3. $f(x) = x^2 - 2x + 2$
- The function has a maximum value. The maximum value of the function is 1.
 - The function has a maximum value. The maximum value of the function is 5.
 - The function has a minimum value. The minimum value of the function is 1.
 - The function has a minimum value. The minimum value of the function is 5.