

Review Chapter 5

Multiple Choice

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

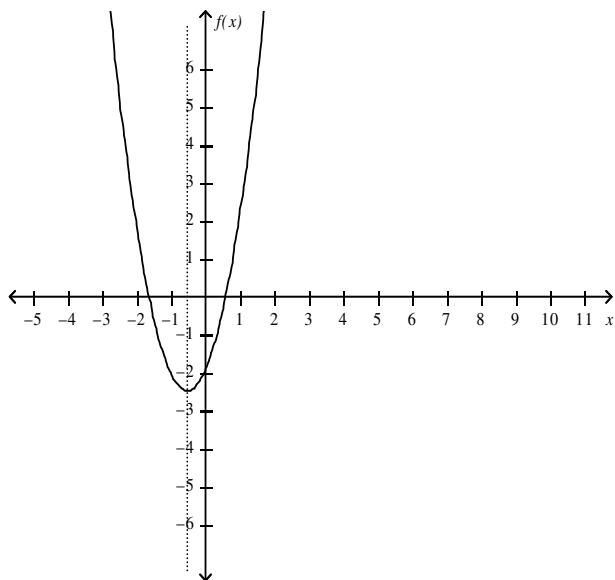
- _____ 1. Consider the quadratic function $f(x) = -2x^2 + 2x + 2$. Find the y-intercept and the equation of the axis of symmetry.
- a. The y-intercept is -2 .
The equation of the axis of symmetry is $x = -\frac{1}{2}$.
 - sb. The y-intercept is $\frac{1}{2}$.
The equation of the axis of symmetry is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

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

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

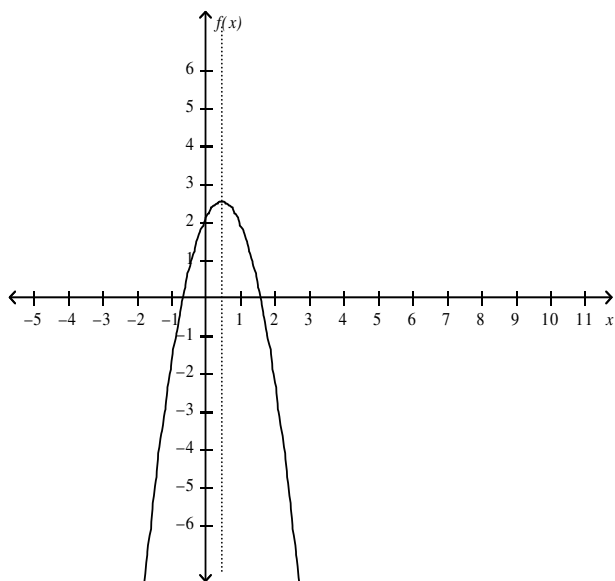
_____ 2. Graph the quadratic function $f(x) = -2x^2 + 2x + 2$.

a.

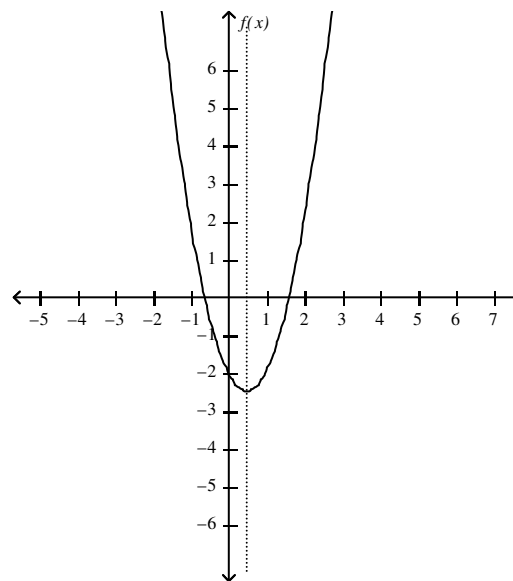


c.

b.

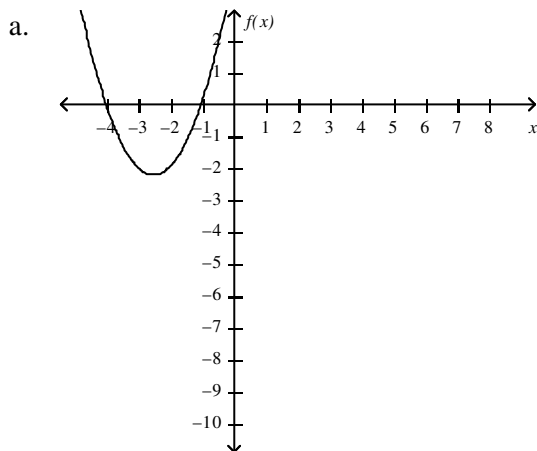


d.

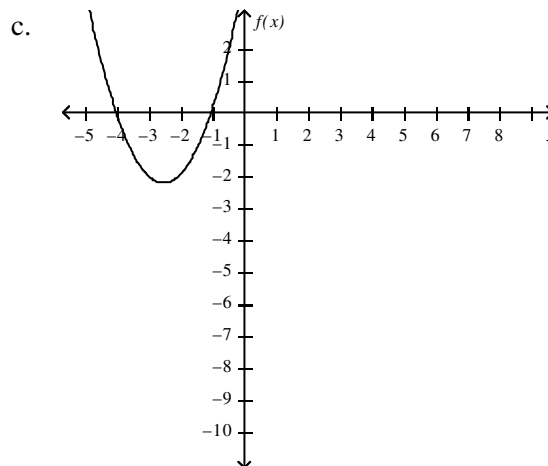


Solve the equation by graphing. If exact roots cannot be found, state the consecutive integers between which the roots are located.

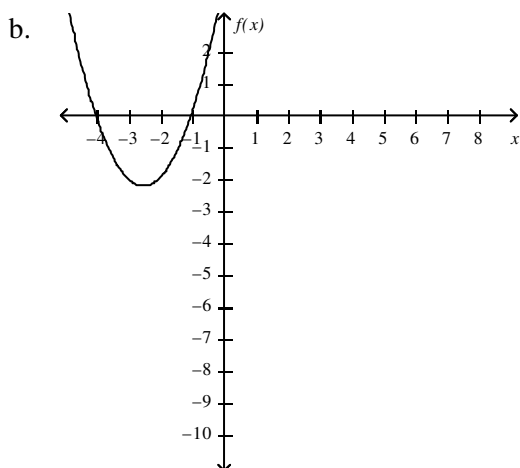
5. $x^2 + 5x + 4 = 0$



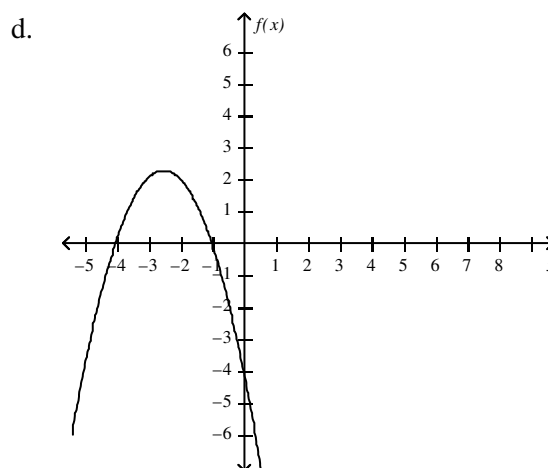
The solution set is $\{-4, -1\}$.



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

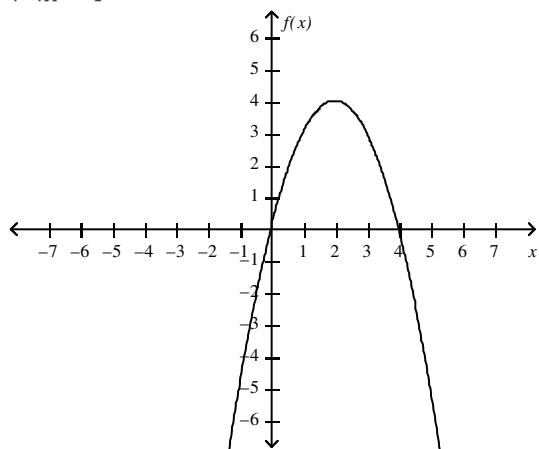


The solution set is $\{-4, -1\}$.



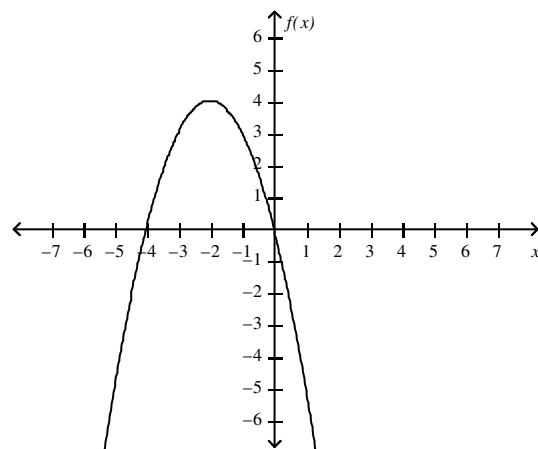
The solution set is $\{-4, -1\}$.

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



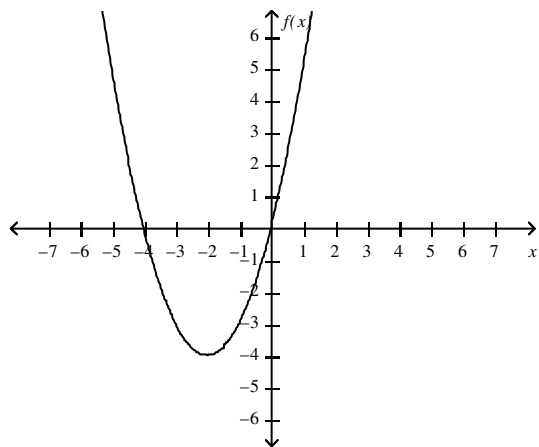
The solution set is $\{0, 4\}$.

c.



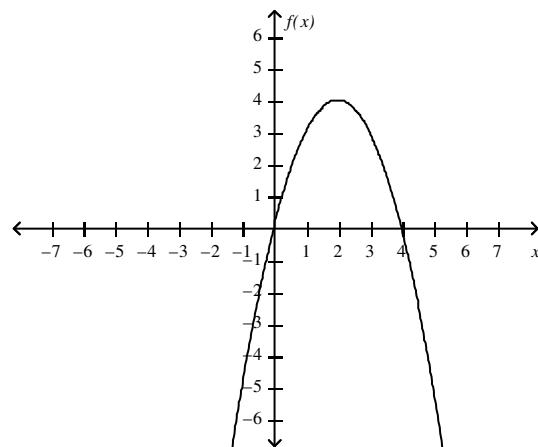
The solution set is $\{-4, 0\}$.

b.



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

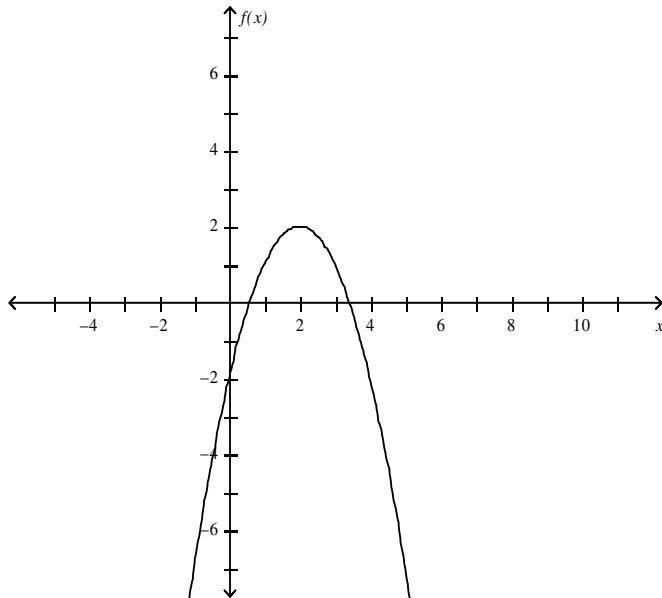
d.



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

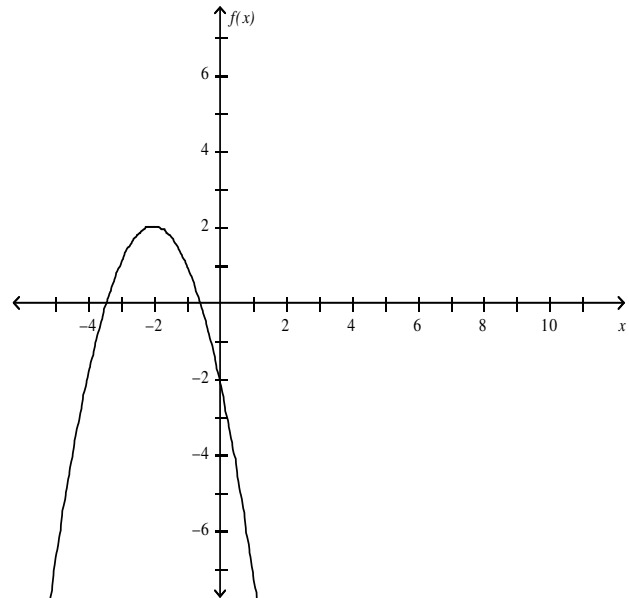
7. $x^2 + 4x + 2 = 0$

a.



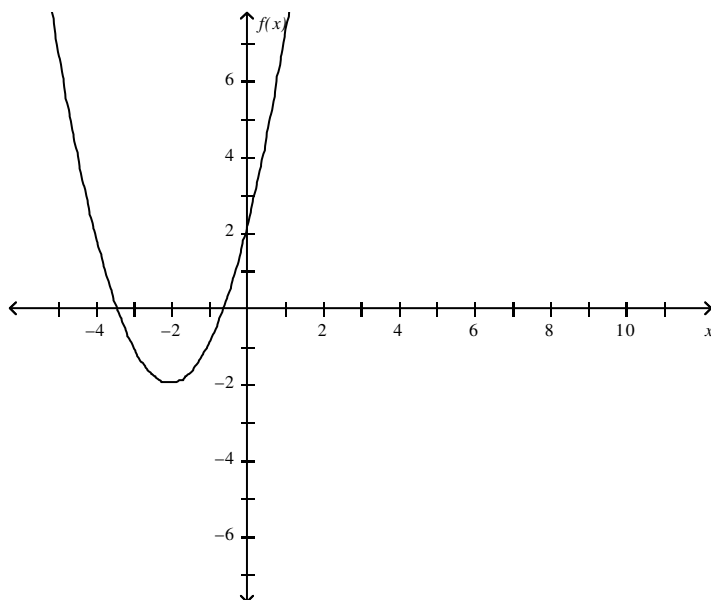
One solution is between 3 and 4, while the other solution is between 0 and 1.

c.



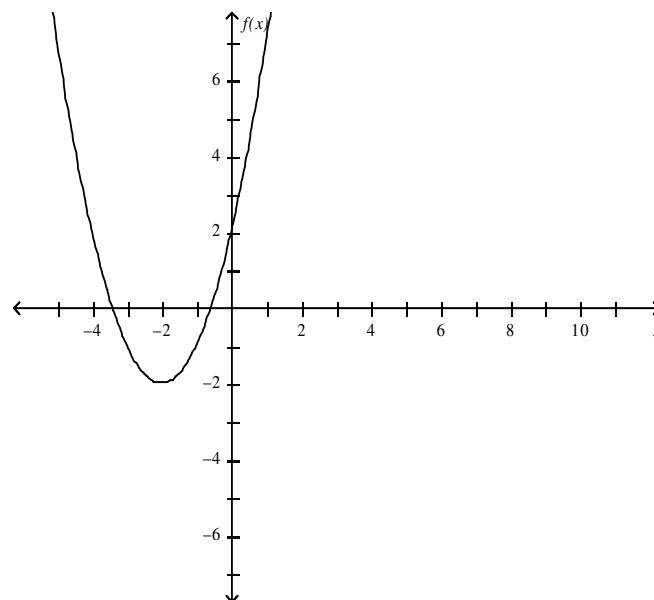
One solution is between -3 and 0, while the other solution is between -4 and -1.

b.



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

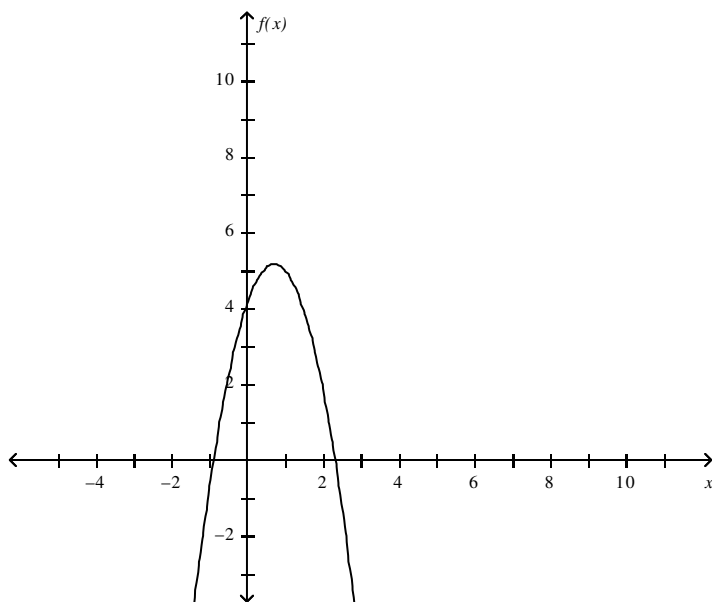
d.



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

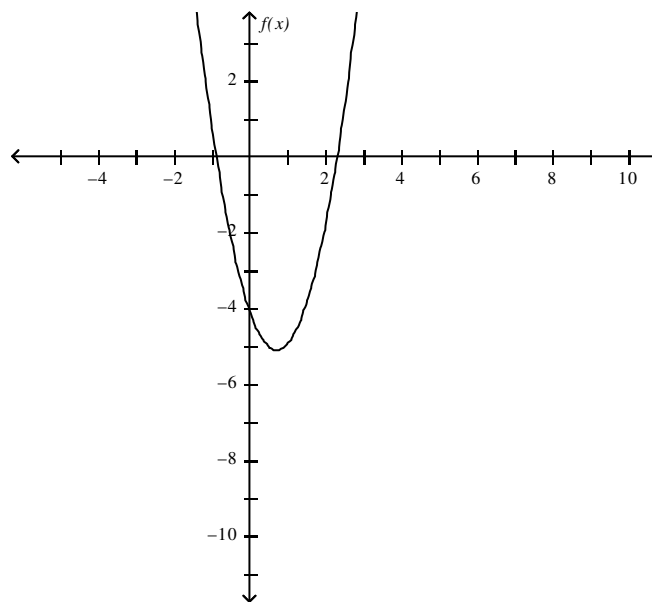
8. $-2x^2 + 3x + 4 = 0$

a.



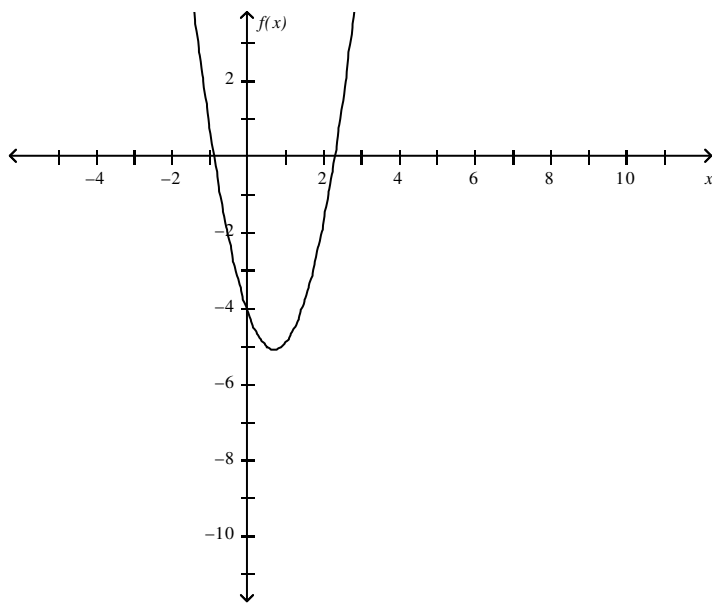
One solution is between 2 and -1 , while the other solution is between 0 and 3.

c.



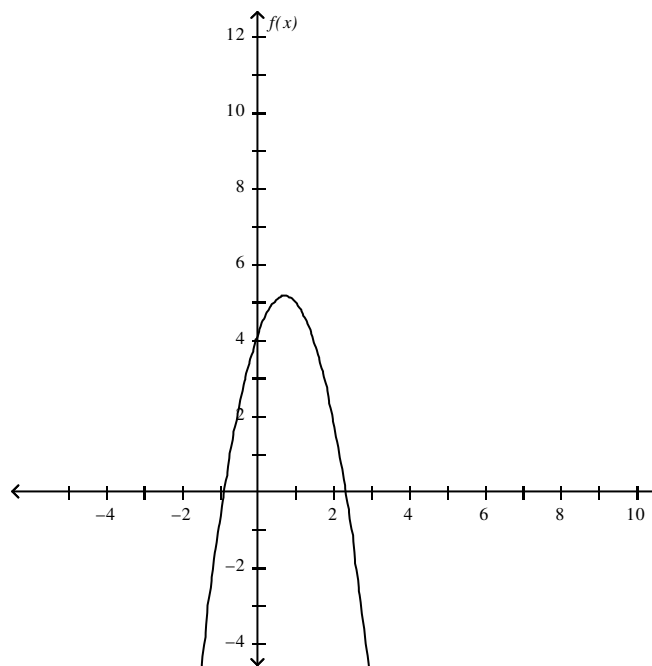
One solution is between -2 and -3 , while the other solution is between 0 and 1.

b.



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

d.



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

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. $x^2 - 7x + 10 = 0$

c. $x^2 - 3x + 10 = 0$

b. $x^2 + 7x + 10 = 0$

d. $x^2 + 3x - 10 = 0$

_____ 10. $-\frac{5}{4}$ and 8

a. $4x^2 - 27x - 40 = 0$

c. $x^2 - 27x - 40 = 0$

b. $4x^2 + 27x + 40 = 0$

d. $x^2 - 27x + 40 = 0$

Solve the equation by factoring.

_____ 11. $x^2 + 3x - 28 = 0$

a. $\{-4, 7\}$

c. $\{4, 7\}$

b. $\{-7, 4\}$

d. $\{-4, -7\}$

_____ 12. $2x^2 + 3x - 14 = 0$

a. $\{-4, -\frac{7}{2}\}$

c. $\{-4, 7\}$

b. $\{-\frac{7}{2}, 2\}$

d. $\{2, 7\}$

Simplify.

_____ 13. $\sqrt{196}$

a. 14

b. $\sqrt{14}$

c.

d. $3\sqrt{14}$

_____ 14. $\sqrt{\frac{245}{64}}$

a. $\frac{7\sqrt{5}}{8}$

b. $\frac{\sqrt{49}}{8}$

c. $\frac{\sqrt{5}}{8}$

d. $\frac{7\sqrt{7}}{8}$

_____ 15. $(2i)(-3i)(4i)$

a. -24

b. $-24i$

c. $24i$

d. 24

_____ 16. i^7

a. $-i$

b. 1

c. i

d. -1

_____ 17. $(11 + i) + (3 - 15i)$

a. $14 - 14i$

b. $-4 + 4i$

c. $12 - 12i$

d. $14 + 16i$

_____ 18. $(11 - 12i) + (21 - 8i)$

a. $9 + 19i$

c. $32 - 4i$

b. $32 - 20i$

d. $29i - i$

_____ 19. $(8 + 10i)(5 - 8i)$

a. $40 - 14i + 80$

c. $40 - 14i - 80i^2$

b. $120 - 14i$

d. $88 + 50i$

_____ 20. $(-4 + 4i)(-3 - 3i)$

a. $16 + 12i$

c. $24 + 0i$

b. $12 + 0i - 12i^2$

d. $12 + 0i + 12$

_____ 21. $\frac{3}{6 + 7i}$

a. $\frac{18}{85} + \frac{21}{85}i$

c. $\frac{18}{13} + \frac{21}{13}i$

b. $\frac{6}{85} - \frac{7}{85}i$

d. $\frac{18}{85} - \frac{21}{85}i$

_____ 22. $\frac{6 - 3i}{8 - 11i}$

a. $\frac{81}{185} + \frac{42}{185}i$

c. $\frac{6}{185} - \frac{3}{185}i$

b. $\frac{15}{57} + \frac{42}{57}i$

d. $\frac{81}{185} - \frac{42}{185}i$

Solve the equation by using the Square Root Property.

_____ 23. $16x^2 - 48x + 36 = 49$

a. $\{\frac{3}{2}\}$

c. $\{-\frac{13}{4}, \frac{1}{4}\}$

b. $\{\frac{3}{2}, 7\}$

d. $\{-\frac{1}{4}, \frac{13}{4}\}$

_____ 24. $100x^2 - 80x + 16 = 9$

a. $\{\frac{1}{10}, \frac{7}{10}\}$

c. $\{\frac{2}{5}\}$

b. $\{-\frac{7}{10}, -\frac{1}{10}\}$

d. $\{\frac{2}{5}, 3\}$

Solve the equation by completing the square.

_____ 25. $x^2 + 2x - 3 = 0$

a. $\{-3, 1\}$

c. $\{-6, 1\}$

b. $\{-6, 2\}$

d. $\{-1, 3\}$

_____ 26. $2x^2 + 2x = 0$

a. $\{-2, 0\}$

c. $\{0\}$

b. $\{0, 1\}$

d. $\{-1, 0\}$

Find the exact solution of the following quadratic equation by using the Quadratic Formula.

_____ 27. $x^2 - 8x = 20$

a. $\{-10, 2\}$

c. $\{-4, 20\}$

b. $\{20, 28\}$

d. $\{-2, 10\}$

_____ 28. $-x^2 + 3x + 7 = 0$

a. $\left\{ \frac{3 - \sqrt{37}}{-2}, \frac{3 + \sqrt{37}}{-2} \right\}$

c. $\left\{ \frac{-3 - \sqrt{-19}}{-2}, \frac{-3 + \sqrt{-19}}{-2} \right\}$

b. $\left\{ \frac{-3 - \sqrt{12}}{-2}, \frac{-3 + \sqrt{12}}{-2} \right\}$

d. $\left\{ \frac{-3 - \sqrt{37}}{-2}, \frac{-3 + \sqrt{37}}{-2} \right\}$

Find the value of the discriminant. Then describe the number and type of roots for the equation.

_____ 29. $-x^2 - 14x + 2 = 0$

- a. The discriminant is 196. Because the discriminant is greater than 0 and is a perfect square, the two roots are real and rational.
- b. The discriminant is -204 . Because the discriminant is less than 0, the two roots are complex.
- c. The discriminant is 204. Because the discriminant is greater than 0 and is not a perfect square, the two roots are real and irrational.
- d. The discriminant is -188 . Because the discriminant is less than 0, the two roots are complex.

_____ 30. $x^2 + x + 7 = 0$

- a. The discriminant is -29 .
Because the discriminant is less than 0, the two roots are complex.
- b. The discriminant is 1.
Because the discriminant is greater than 0 and is a perfect square, the two roots are real and rational.
- c. The discriminant is -27 .
Because the discriminant is less than 0, the two roots are complex.
- d. The discriminant is 27.
Because the discriminant is greater than 0 and is a perfect square, the two roots are real and rational.

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

_____ 31. $y = x^2 + 4x - 6$

- 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 $x = -10$.

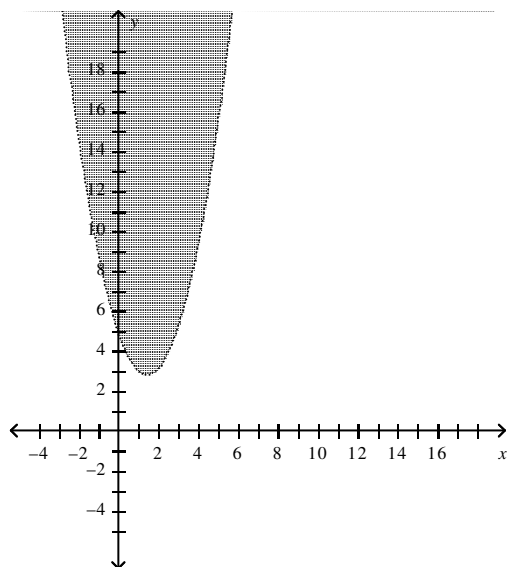
_____ 32. $y = -3x^2 + 48x$

- 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 $x = 192$.

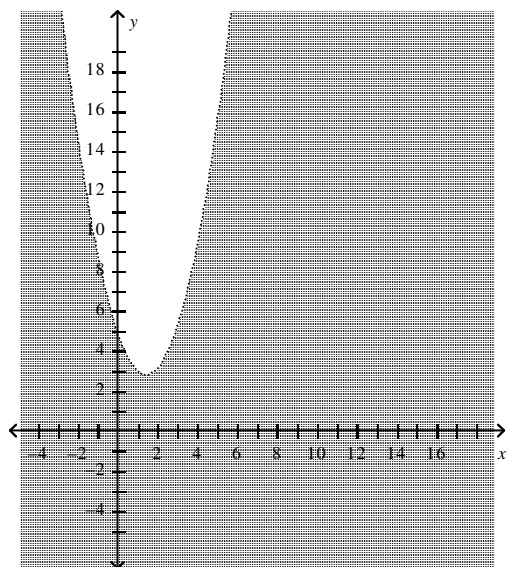
Graph the quadratic inequality.

____ 35. $y > x^2 - 3x + 5$

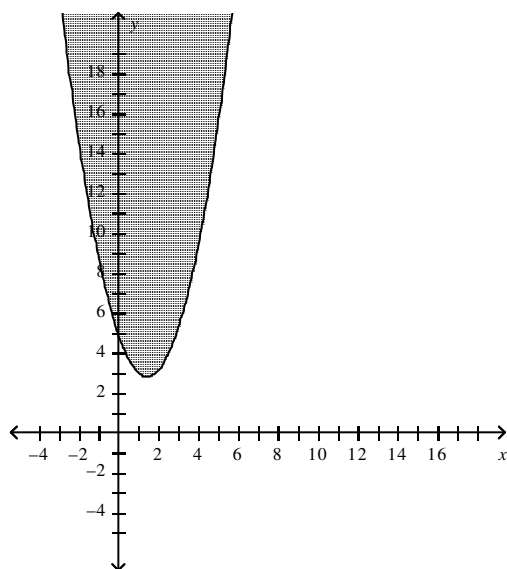
a.



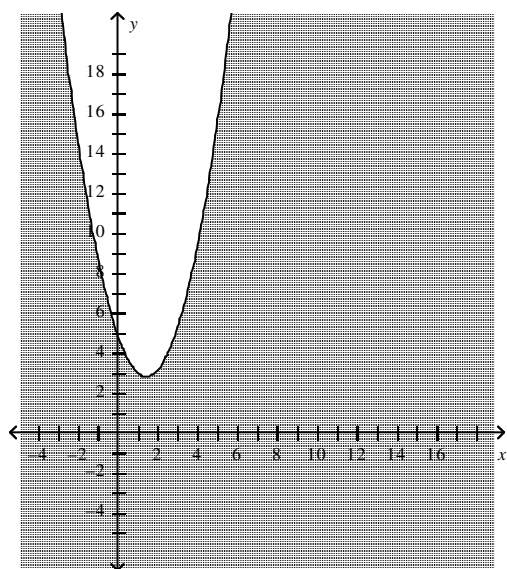
c.



b.

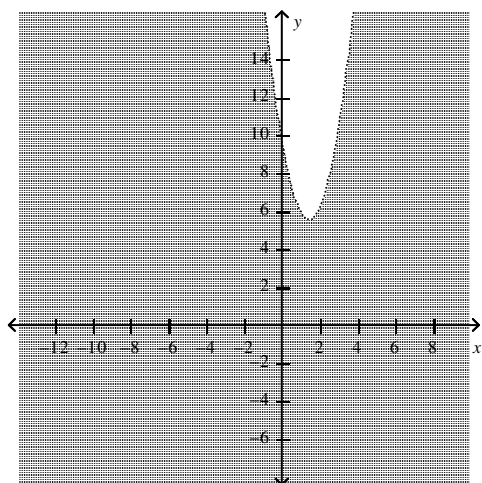


d.

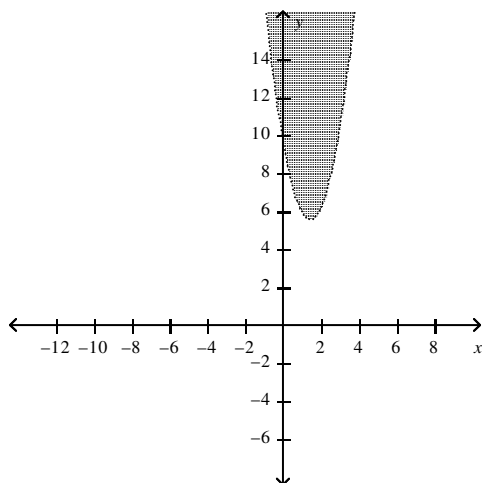


_____ 36. $y < 2x^2 - 6x + 10$

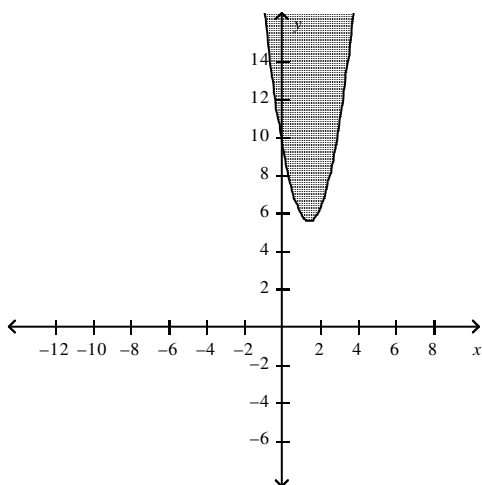
a.



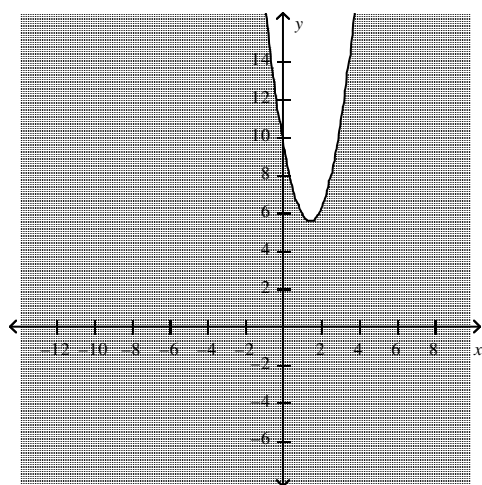
c.



b.



d.



Solve the inequality algebraically.

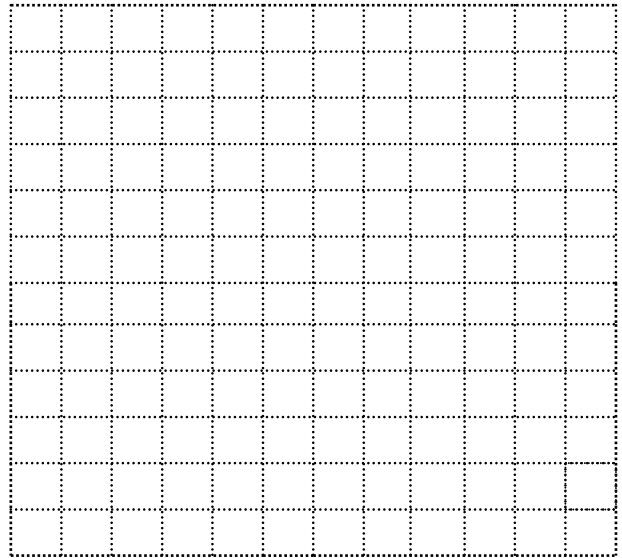
_____ 37. $2x^2 + 14x < -12$

a. $\{x \mid -1 < x < -6\}$

b. $\{x \mid -12 < x < -2\}$

c. $\{x \mid -6 < x < -1\}$

d. $\{x \mid -2 < x < -12\}$



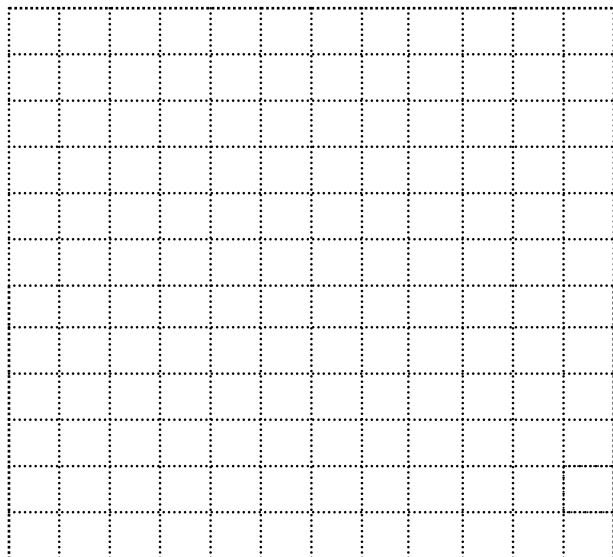
_____ 38. $x^2 + 4x > 45$

a. $\{x|x < 9 \text{ or } x > -5 \}$

b. $\{x|x < -9 \text{ or } x > 5 \}$

c. $\{x|x < 9 \text{ or } x > 5 \}$

d. $\{x|x < -9 \text{ or } x > -5 \}$



Review Chapter 5

Answer Section

MULTIPLE CHOICE

1. C
2. B
3. C
4. D
5. B
6. A
7. D
8. D
9. D
10. A
11. B
12. B
13. A
14. A
15. C
16. A
17. A
18. B
19. B
20. C
21. D
22. A
23. D
24. A
25. A
26. D
27. D
28. D
29. C
30. C
31. A
32. C
33. C
34. A
35. A
36. A
37. C
38. B