Name: _____

Algebra 2 H Chapter 5 Test Part 2

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 $x = -\frac{1}{2}$.

   b. 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 $x = \frac{1}{2}$.

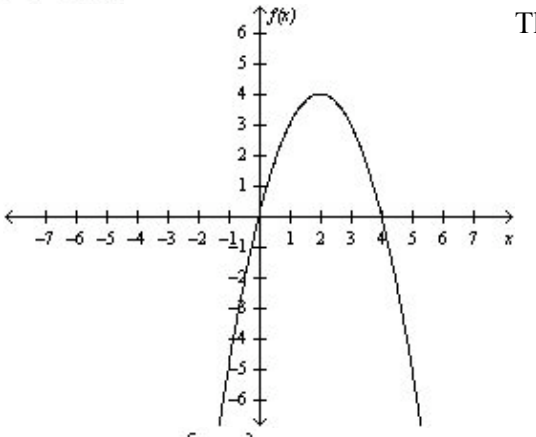
   d. The *y*-intercept is $-\frac{1}{2}$.

      The equation of the axis of symmetry is $x = -2$.

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

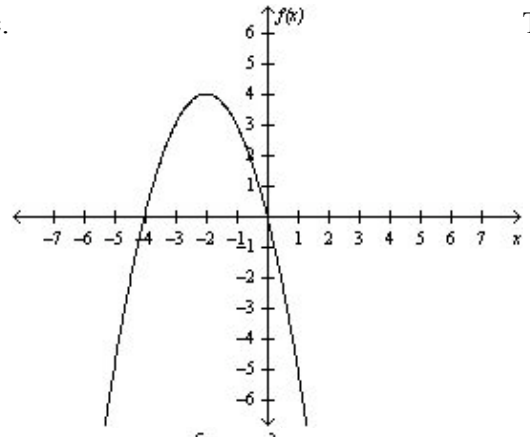
2. $-x^2 + 4x = 0$

   a.



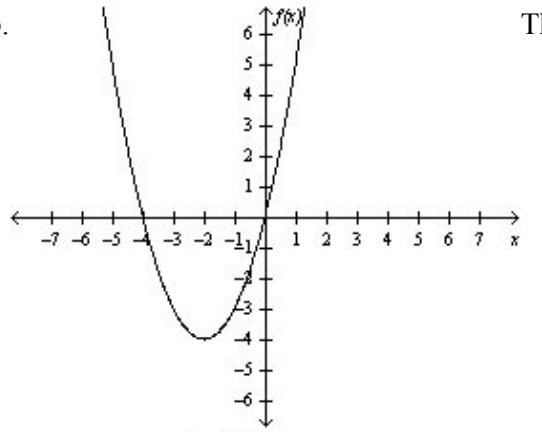
   solution set is $\{0, 4\}$.

   Thec.

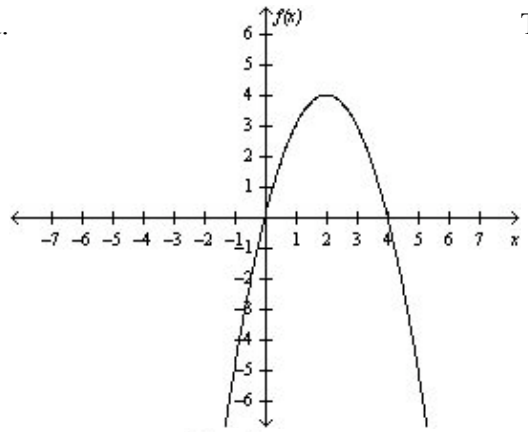


   solution set is $\{-4, 0\}$.

   The

b. 

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

Thed. 

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

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.*

3. –5 and 2

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

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

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

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

Simplify.

4. $\sqrt{196}$

a. 14

b. $\sqrt{14}$

c. 196

d. $3\sqrt{14}$

5. i^7

a. $-i$

b. 1

c. i

d. -1

6. $\dfrac{3}{6+7i}$

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

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

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

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

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

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

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

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

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

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

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

8. $y = x^2 + 4x - 6$

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 $x = -10$.

9. $y = -3x^2 + 48x$

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 $x = 192$.

10. Write an equation for the parabola whose vertex is at $(2,\ 6)$ and which passes through $(4,\ -1)$.

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

b. $y = 1.75(x-2)^2 + 6$

c. $y = -1.75(x-2)^2 + 6$

d. $y = -1.75(x+2)^2 - 6$

11. Write an equation for the parabola whose vertex is at $(3,\ 3)$ and which passes through $(5,\ 27)$.

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

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

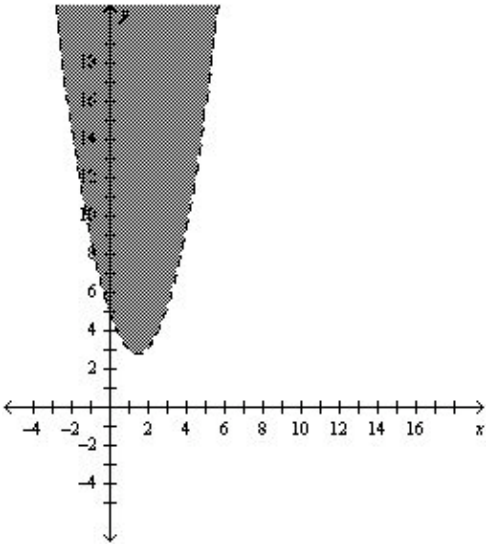
c. $y = 6(x+3)^2 - 3$

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

Graph the quadratic inequality.

12. $y > x^2 - 3x + 5$

a.



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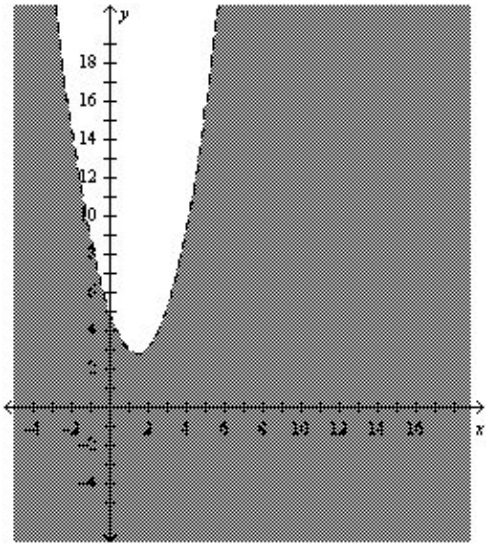

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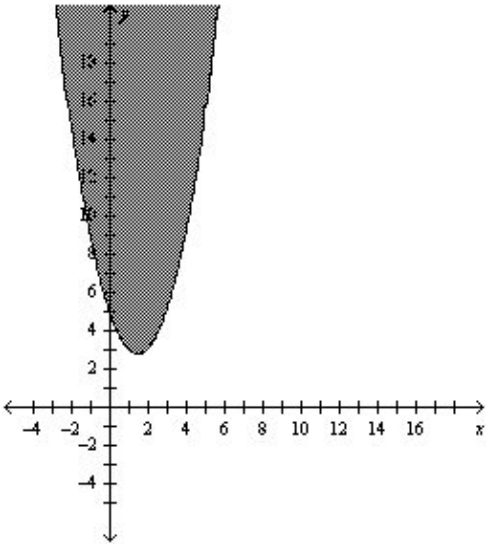

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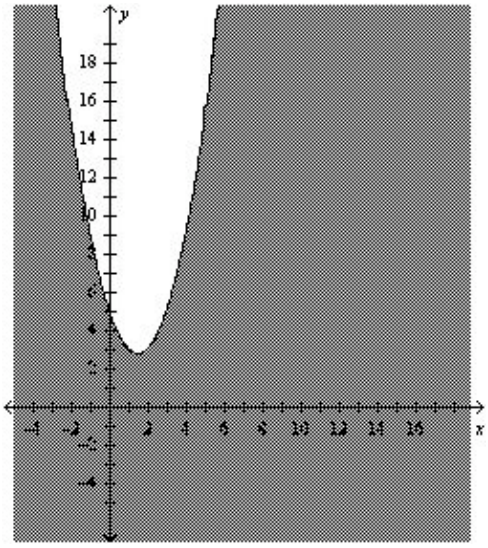
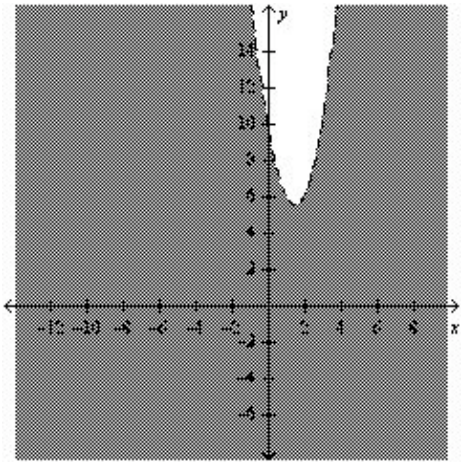
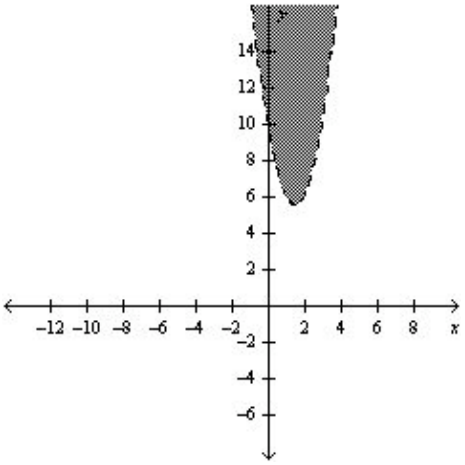


13. $y < 2x^2 - 6x + 10$

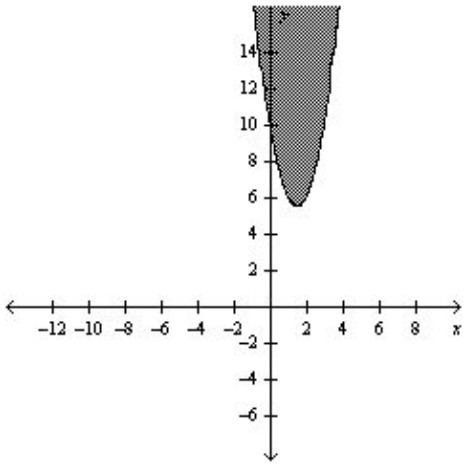
a.



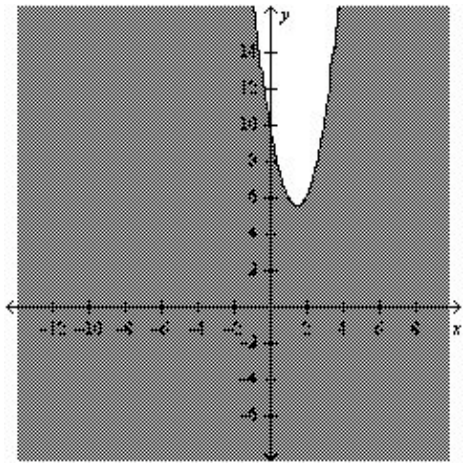
c.



b.



d.



Solve the inequality algebraically.

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

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

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

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

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

15. $x^2 + 4x > 45$

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

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

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

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

Check Your Work Start Over