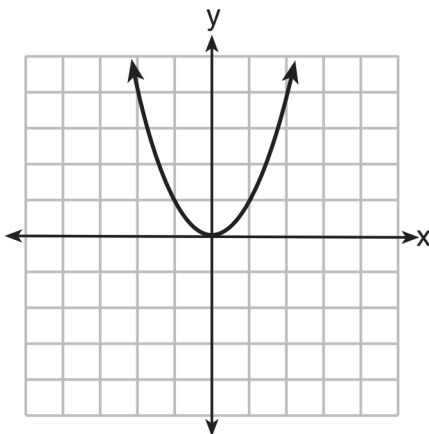


Fun Times With Parabolas

Name: _____

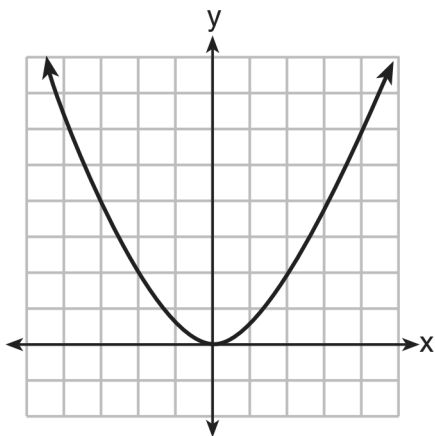
Date: _____

1. The graph of $y = x^2$ is shown below.

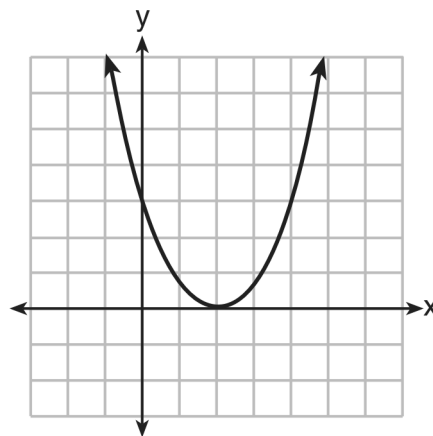


Which graph represents $y = 2x^2$?

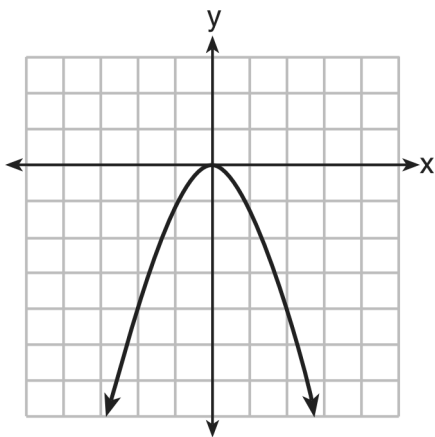
A.



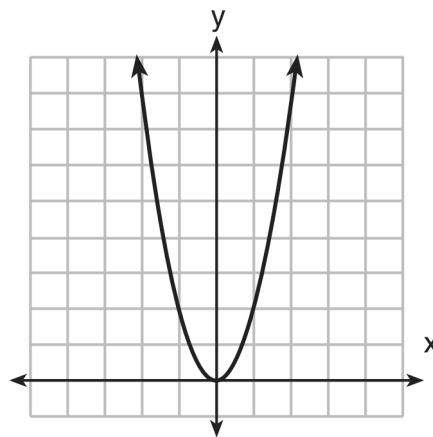
B.



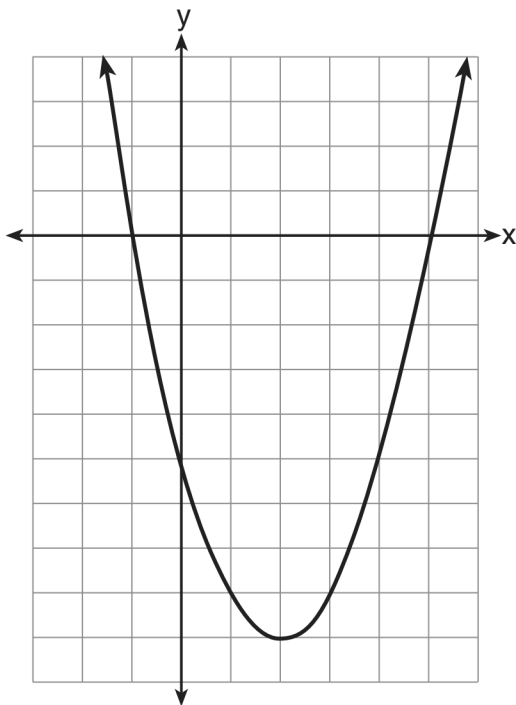
C.



D.



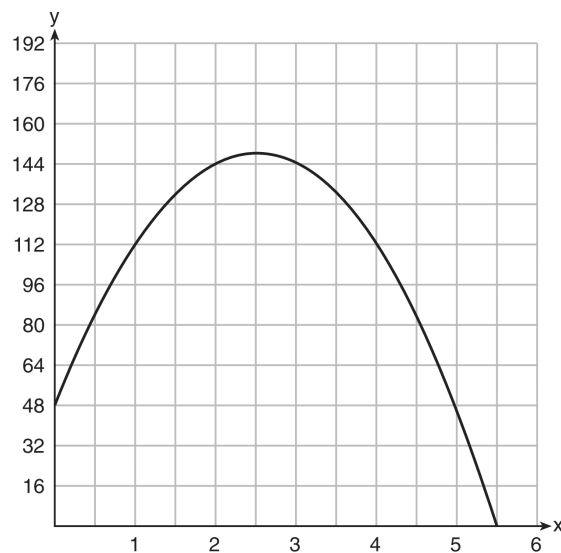
2. The graph of $f(x)$ is shown below.



Based on this graph, what are the roots of the equation $f(x) = 0$?

- A. 1 and -5
- B. -1 and 5
- C. 2 and -9
- D. -1 and -5 and 5

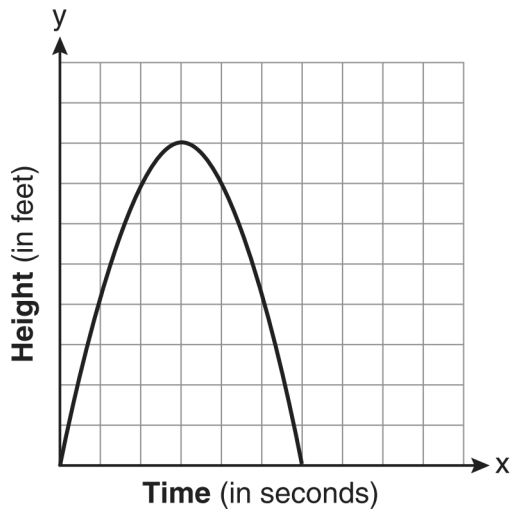
3. A ball is thrown into the air from the edge of a 48-foot-high cliff so that it eventually lands on the ground. The graph below shows the height, y , of the ball from the ground after x seconds.



For which interval is the ball's height always *decreasing*?

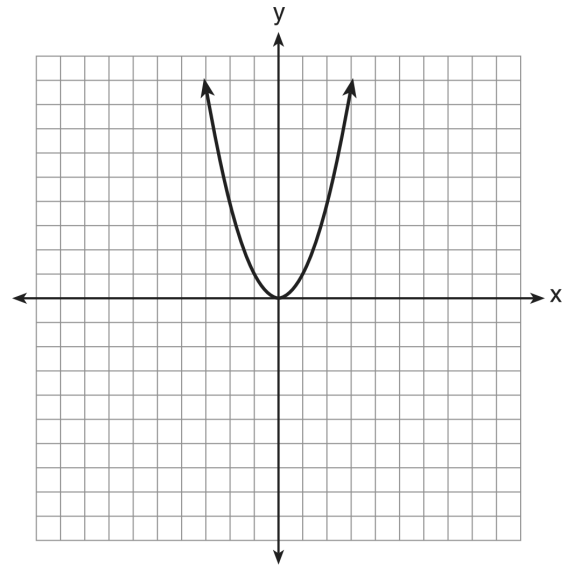
- A. $0 \leq x \leq 2.5$
 - B. $0 < x < 5.5$
 - C. $2.5 < x < 5.5$
 - D. $x \geq 2$
4. Which equation represents the axis of symmetry of the graph of the equation $y = x^2 + 4x - 5$?
- A. $x = -2$
 - B. $x = 4$
 - C. $y = -2$
 - D. $y = 4$

5. The graph below represents the parabolic path of a ball kicked by a young child. What are the vertex and the axis of symmetry for the parabola?



- A. vertex: $(3, 8)$; axis of symmetry: $x = 3$
- B. vertex: $(3, 8)$; axis of symmetry: $y = 3$
- C. vertex: $(8, 3)$; axis of symmetry: $x = 3$
- D. vertex: $(8, 3)$; axis of symmetry: $y = 3$

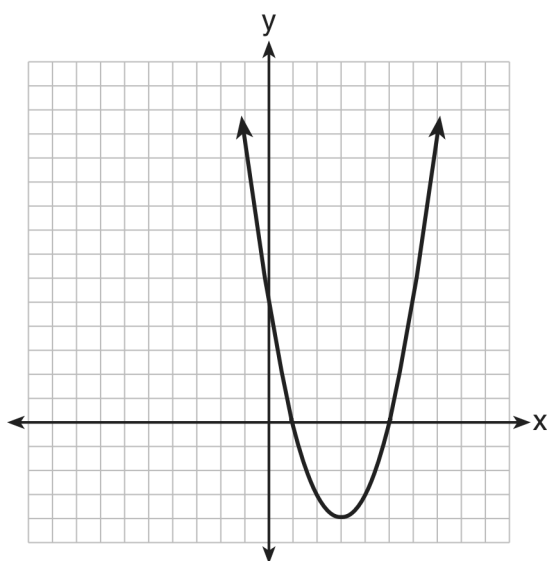
6. The graph of the equation $y = x^2$ is shown below.



Which statement best describes the change in this graph when the coefficient of x^2 is multiplied by 4?

- A. The parabola becomes wider.
- B. The parabola becomes narrower.
- C. The parabola will shift up four units.
- D. The parabola will shift right four units.

7. The equation $y = ax^2 + bx + c$ is graphed on the set of axes below.

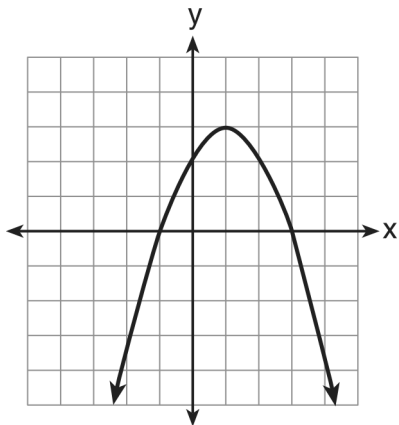


Based on the graph, what are the roots of the equation $ax^2 + bx + c = 0$?

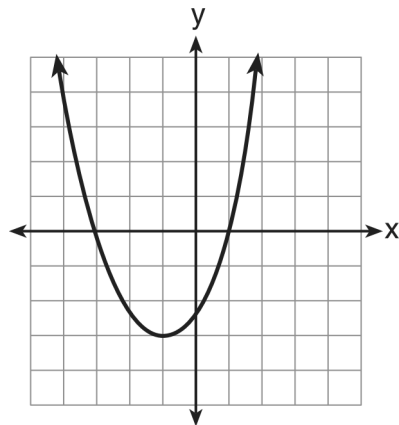
- A. 0 and 5 B. 1 and 0
C. 1 and 5 D. 3 and -4

8. Which parabola has an axis of symmetry of $x = 1$?

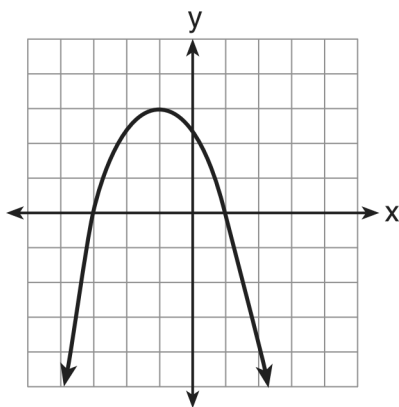
A.



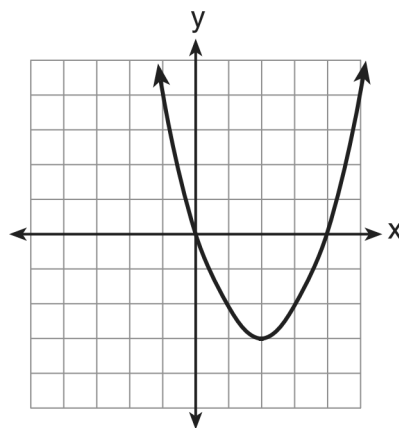
B.



C.



D.



9. When factored completely, the expression $3x^2 - 9x + 6$ is equivalent to

A. $(3x - 3)(x - 2)$ B. $(3x + 3)(x - 2)$

C. $3(x + 1)(x - 2)$ D. $3(x - 1)(x - 2)$

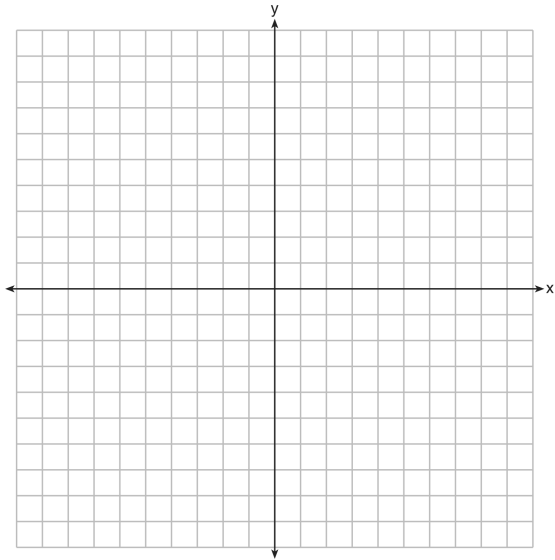
10. The greatest common factor of $3m^2n + 12mn^2$ is

A. $3n$ B. $3m$

C. $3mn$ D. $3mn^2$

11. On the set of axes below, graph $y = 2x^2 - 4x - 6$.

State the roots of $0 = 2x^2 - 4x - 6$.

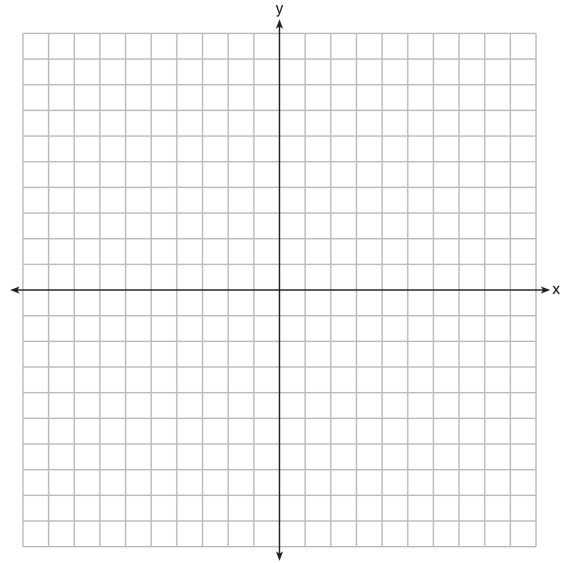


12. What is the vertex of the graph of the equation $y = 3x^2 + 6x + 1$?

- A. $(-1, -2)$ B. $(-1, 10)$
C. $(1, -2)$ D. $(1, 10)$

13. On the set of axes below, solve the following system of equations graphically for all values of x and y . State the coordinates of all the solutions.

$$y = x^2 + 4x - 5$$
$$y = 2x + 3$$



- | | |
|---------|---|
| 1. | |
| Answer: | D |
| Points: | 1 |
| 2. | |
| Answer: | B |
| Points: | 1 |
| 3. | |
| Answer: | C |
| Points: | 1 |
| 4. | |
| Answer: | A |
| Points: | 1 |
| 5. | |
| Answer: | A |
| Points: | 1 |
| 6. | |
| Answer: | B |
| Points: | 1 |
| 7. | |
| Answer: | C |
| Points: | 1 |
| 8. | |
| Answer: | A |
| Points: | 1 |
| 9. | |
| Answer: | D |
| Points: | 1 |
| 10. | |
| Answer: | C |
| Points: | 1 |
| 11. | |
| Answer: | Correct Graph, -1 and 3 |
| Points: | 1 |
| 12. | |
| Answer: | A |
| Points: | 1 |
| 13. | |
| Answer: | Both equations are graphed correctly, and $(-4, -5)$ and $(2, 7)$ are stated. |
| Points: | 1 |