

vertex, turning point, axis of symmetry practice

Name: \_\_\_\_\_

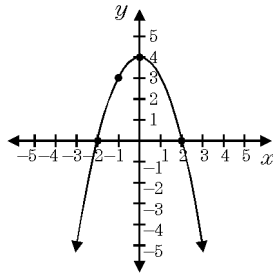
Date: \_\_\_\_\_

1. 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.  $(1, 10)$

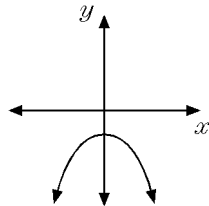
2. Which is an equation of the parabola graphed in the accompanying diagram?

- A.  $y = x^2 + 4$   
 B.  $y = x^2 - 4$   
 C.  $y = -x^2 + 4$   
 D.  $y = -x^2 - 4$



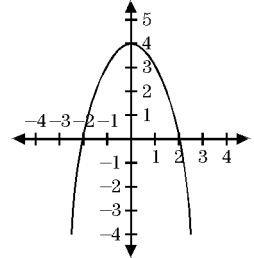
3. Which equation can represent the parabola in the diagram?

- A.  $y = -x^2$   
 B.  $y = x^2$   
 C.  $y = x^2 - 3$   
 D.  $y = -x^2 - 3$



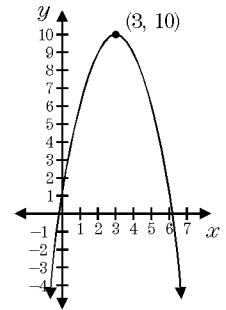
4. Which is an equation of the graph shown in the diagram?

- A.  $y = x^2 - 4$   
 B.  $y = -x^2 + 4$   
 C.  $x = y^2 - 4$   
 D.  $x = -y^2 + 4$



5. Which equation defines the graph in the diagram?

- A.  $y = x^2 + 6x + 1$   
 B.  $y = -x^2 + 6x + 1$   
 C.  $y = x^2 + 3x$   
 D.  $y = -x^2 + 3x - 1$



6. The coordinates of the turning point of the parabola whose equation is  $y = x^2 - 6x + 8$  are

- A.  $(3, 35)$                       B.  $(-3, -1)$   
 C.  $(-3, 35)$                     D.  $(3, -1)$

7. The vertex of the parabola  $y = x^2 + 8x + 10$  lies in Quadrant

- A. I                      B. II                      C. III                      D. IV

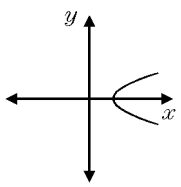
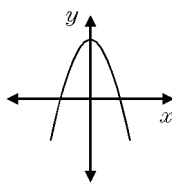
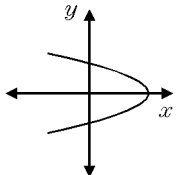
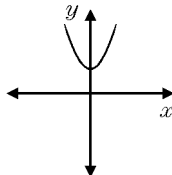
8. What is the turning point of the parabola whose equation is  $y = 2x^2 + 4x - 3$ ?

- A. (1, 3)                      B. (-2, -3)  
 C. (2, 13)                    D. (-1, -5)

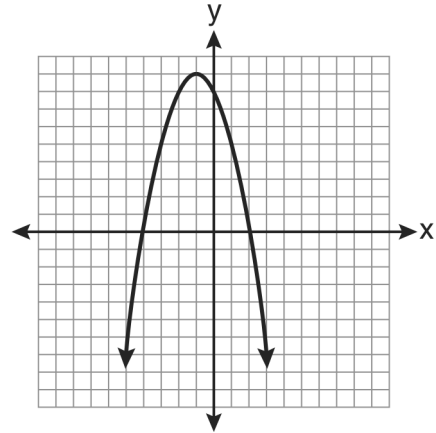
9. What are the coordinates of the turning point of the parabola whose equation is  $y = x^2 - 2x - 4$ ?

- A. (-2, 4)                      B. (1, -5)  
 C. (-1, -1)                    D. (2, -4)

10. Which graph represents the equation  $y = -x^2 + 4$ ?

- A.       B.   
 C.       D. 

11. The equation  $y = -x^2 - 2x + 8$  is graphed on the set of axes below.



Based on this graph, what are the roots of the equation  $-x^2 - 2x + 8 = 0$ ?

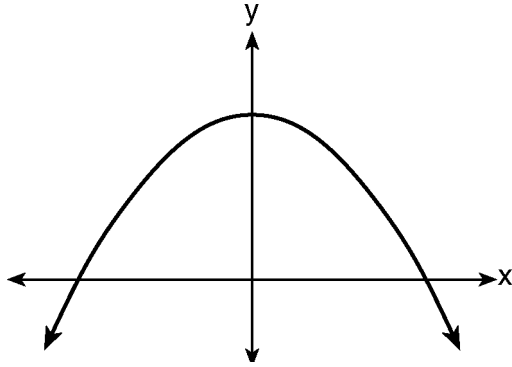
- A. 8 and 0                      B. 2 and -4  
 C. 9 and -1                    D. 4 and -2

12. The coordinates of the turning point of the graph of the equation  $y = 2x^2 - 4x + 6$  are (1, k). What is the value of k?

13. Which is an equation of the axis of symmetry of the parabola whose equation is  $y = 3x^2 - 12x - 13$ ?

- A.  $x = -4$                       B.  $x = 2$   
 C.  $x = 3$                         D.  $x = 4$

14. Which equation is best represented by the accompanying graph?



- A.  $y = 6^x$                       B.  $y = 6x^2$   
 C.  $y = 6x + 1$                 D.  $y = -x^2 + 1$

15. Which equation represents the axis of symmetry of the graph of the equation  $y = x^2 - 6x + 5$ ?

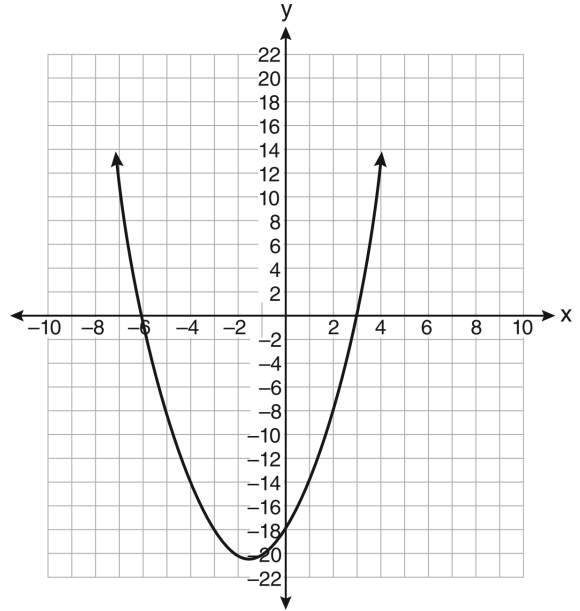
- A.  $x = -3$                       B.  $y = -3$   
 C.  $x = 3$                         D.  $y = 3$

16. Which is an equation of the axis of symmetry of the parabola whose equation is  $y = x^2 - 4x + 2$ ?

- A.  $x = -2$                       B.  $x = 2$   
 C.  $y = -2$                       D.  $y = 2$

17. The coordinates of the turning point of the graph of the equation  $y = x^2 - 2x - 8$  are  $(1, k)$ . What is the value of  $k$ ?

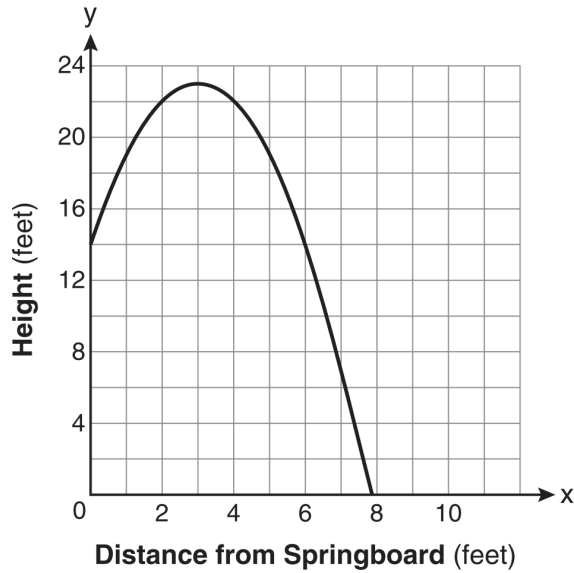
18. The equation  $y = x^2 + 3x - 18$  is graphed on the set of axes below.



Based on this graph, what are the roots of the equation  $x^2 + 3x - 18 = 0$ ?

- A.  $-3$  and  $6$                       B.  $0$  and  $-18$   
 C.  $3$  and  $-6$                       D.  $3$  and  $-18$

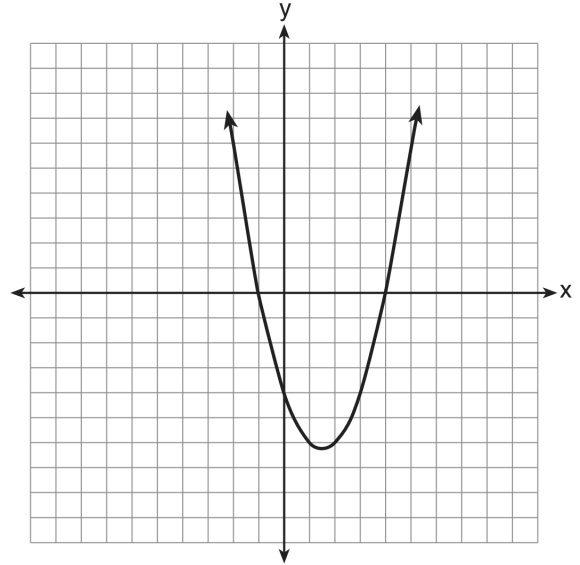
19. A swim team member performs a dive from a 14-foot-high springboard. The parabola below shows the path of her dive.



Which equation represents the axis of symmetry?

- A.  $x = 3$                       B.  $y = 3$   
 C.  $x = 23$                       D.  $y = 23$

20. The roots of a quadratic equation can be found using the graph below.



What are the roots of this equation?

- A.  $-4$ , only                      B.  $-4$  and  $-1$   
 C.  $-1$  and  $4$                       D.  $-4$ ,  $-1$ , and  $4$

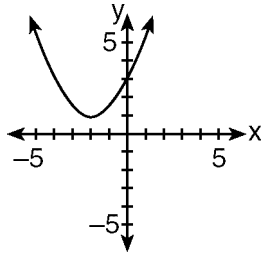
21. What are the vertex and axis of symmetry of the parabola  $y = x^2 - 16x + 63$ ?

- A. vertex:  $(8, -1)$ ; axis of symmetry:  $x = 8$   
 B. vertex:  $(8, 1)$ ; axis of symmetry:  $x = 8$   
 C. vertex:  $(-8, -1)$ ; axis of symmetry:  $x = -8$   
 D. vertex:  $(-8, 1)$ ; axis of symmetry:  $x = -8$

22. Which is an equation of the axis of symmetry of the graph whose equation is  $y = x^2 + 8x - 10$ ?

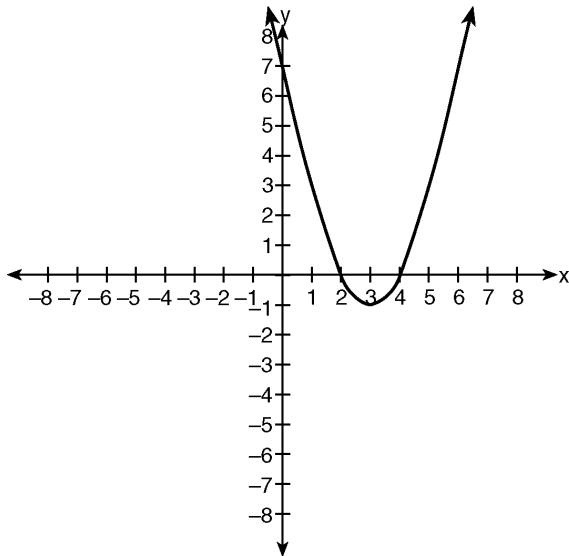
- A.  $y = -4$                       B.  $y = 4$   
 C.  $x = -4$                       D.  $x = 4$

23. The accompanying diagram shows a parabola.



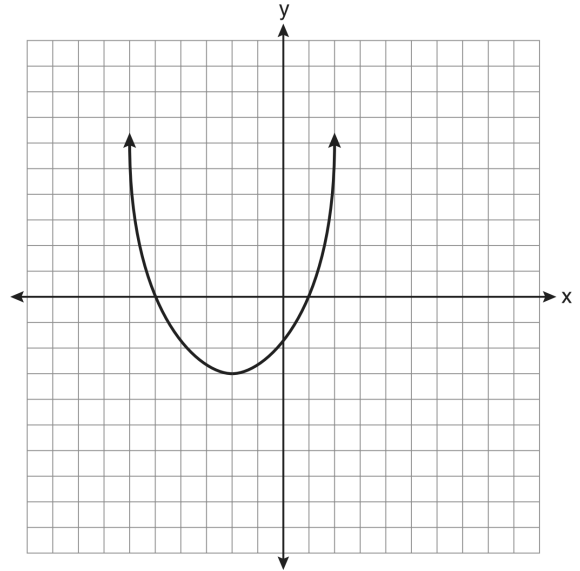
Which statement is *not* true?

- A. The equation of the axis of symmetry is  $x = -2$ .
- B. The parabola has a minimum point.
- C. The turning point of the parabola is  $(-2, 1)$ .
- D. The parabola has two  $x$ -intercepts.
24. Which is an equation of the axis of symmetry for the parabola whose equation is  $y = x^2 - 8x - 7$ ?
- A.  $x = 4$    B.  $y = 4$    C.  $x = 8$    D.  $y = 8$
25. Which is an equation of the line of symmetry for the parabola in the accompanying diagram?



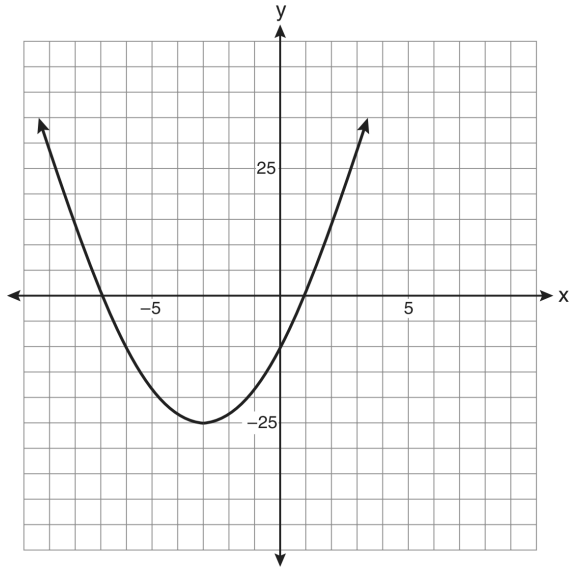
- A.  $x = 2$    B.  $x = 4$    C.  $x = 3$    D.  $y = 3$

26. What are the vertex and the axis of symmetry of the parabola shown in the diagram below?



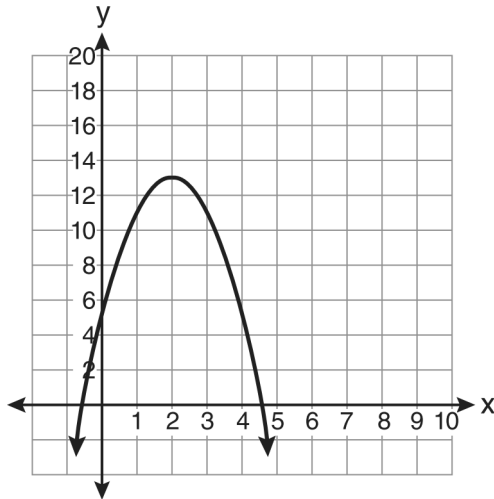
- A. The vertex is  $(-2, -3)$ , and the axis of symmetry is  $x = -2$ .
- B. The vertex is  $(-2, -3)$ , and the axis of symmetry is  $y = -2$ .
- C. The vertex is  $(-3, -2)$ , and the axis of symmetry is  $y = -2$ .
- D. The vertex is  $(-3, -2)$ , and the axis of symmetry is  $x = -2$ .

27. Which equation represents the axis of symmetry of the graph of the parabola below?



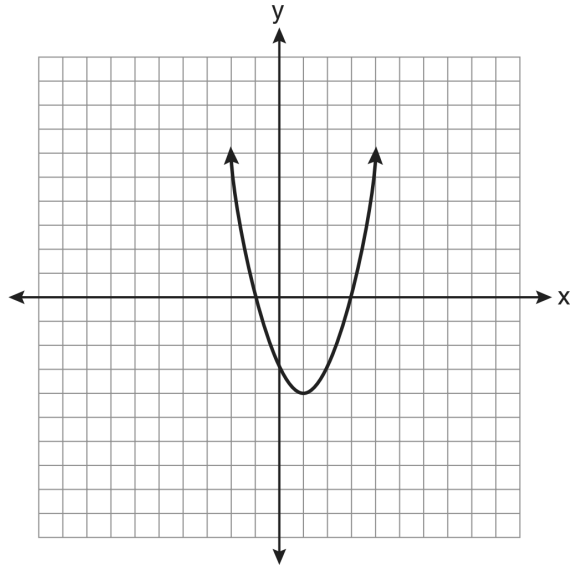
- A.  $y = -3$                       B.  $x = -3$   
 C.  $y = -25$                       D.  $x = -25$

28. What is the equation of the axis of symmetry of the parabola shown in the diagram below?



- A.  $x = -0.5$                       B.  $x = 2$   
 C.  $x = 4.5$                       D.  $x = 13$

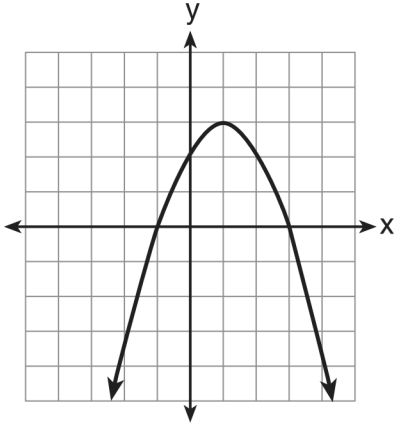
29. What are the vertex and axis of symmetry of the parabola shown in the diagram below?



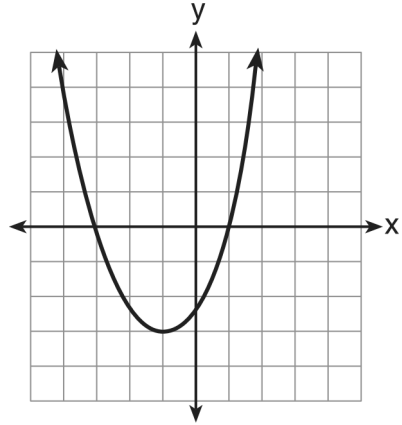
- A. vertex:  $(1, -4)$ ; axis of symmetry:  $x = 1$   
 B. vertex:  $(1, -4)$ ; axis of symmetry:  $x = -4$   
 C. vertex:  $(-4, 1)$ ; axis of symmetry:  $x = 1$   
 D. vertex:  $(-4, 1)$ ; axis of symmetry:  $x = -4$

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

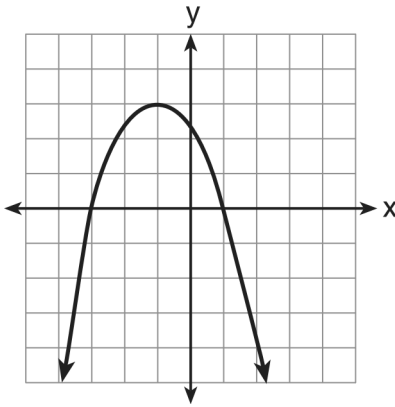
A.



B.



C.



D.

