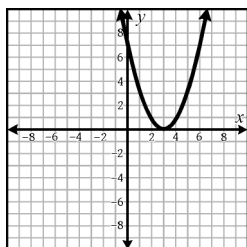


## GRAPHS OF PARABOLAS 1

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

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

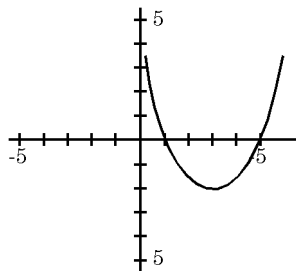
1. Given the graph of the function, determine the number of distinct real roots.



- A. no root
- B. one root
- C. infinite number of roots
- D. not enough information to determine the number

2. What are the roots of the graphed function?

- F. {5}
- G. {3, -2}
- H. {1, 5}
- J.  $\emptyset$



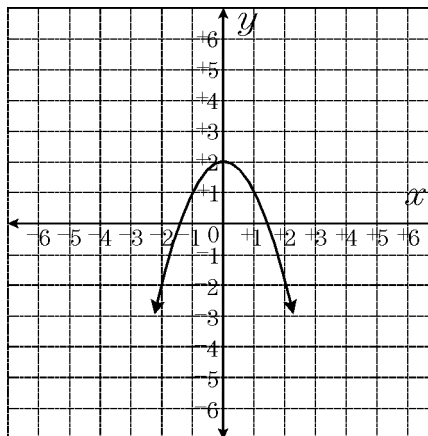
3. The table contains values for  $x$  and  $y$  in a quadratic function.

$x$	$y$
-1	0
0	10
1	16
2	18
3	16
4	10
5	0

What are the roots of the function?

- A. -1 and 5
- B. -1 and 10
- C. -1, 0, and 5
- D. -1, 10, and 5

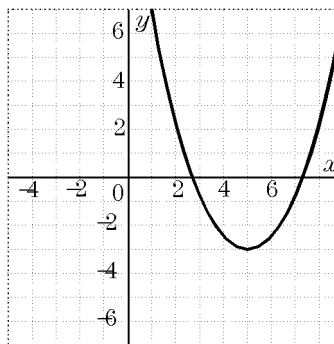
4. The graph of  $y = -x^2 + 2$  is shown below.



What is the *maximum*  $y$ -value graphed?

- F. 0
- G. -1
- H. -2
- J. 2

5. In the diagram, is the vertex a maximum or minimum point? What are the coordinates of the vertex?

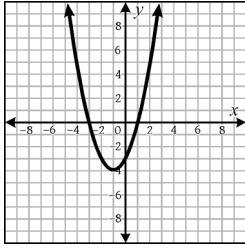


- A. minimum; (5, 3)
- B. minimum; (-3, 5)
- C. maximum; (5, -3)
- D. minimum; (5, -3)

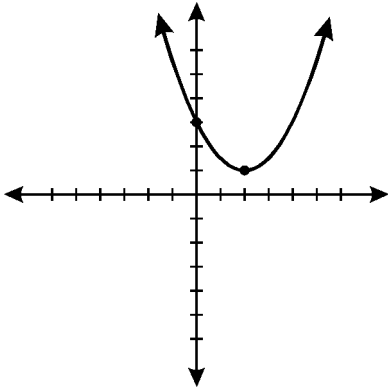
6. The equation of the axis of symmetry of the graph of  $y = 2x^2 - 4x - 1$  is:

- F.  $x = 2$
- G.  $y = 1$
- H.  $x = 1$
- J.  $x = -1$

7. State the vertex and x-intercept(s) of the given graph.



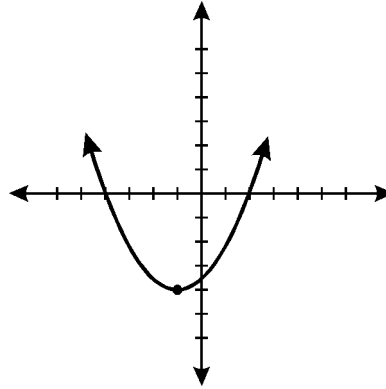
- A. vertex:  $(-1, -4)$  x-intercept(s):  $-3, 1$   
 B. vertex:  $(-1, -4)$  x-intercept(s):  $-3$   
 C. vertex:  $(-4, -1)$  x-intercept(s):  $-1, 3$   
 D. vertex:  $(-3, 1)$  x-intercept(s):  $-4, 1$
8. Which statement is *not* supported by the graph shown?



- F. The vertex of the graph is  $(2, 1)$ .  
 G. The roots of the quadratic function are 0 and 3.  
 H. The coefficient of  $x^2$  in the equation of this quadratic function is positive.  
 J. The quadratic function graphed has no real solution.
9. What is the *minimum* value of the function  $y = x^2 + 3x + 4$ ?
- A. 12      B.  $\frac{25}{4}$       C.  $\frac{7}{4}$       D.  $\frac{3}{4}$

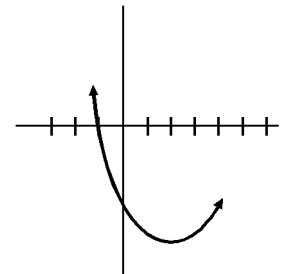
10. An equation of the axis of symmetry of the graph of the equation  $y = 2x^2 + 6x - 5$  is:
- F.  $x = -\frac{3}{2}$       G.  $x = -3$       H.  $y = -\frac{3}{2}$       J.  $y = -3$

11. Which statement is *not* supported by the graph shown?

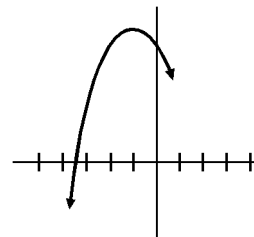


- A. The line of symmetry is  $x = -1$ .  
 B. The roots of the quadratic function are  $-4$  and  $2$ .  
 C. The coefficient of  $x^2$  in the equation of this quadratic function is negative.  
 D. The quadratic function graphed has two solutions.
12. The graph of  $y = x^2 - 4x - 5$  is a parabola. (A portion of the graph is shown.) The x-intercepts of this parabola are  $-1$  and \_\_\_\_\_.

- F. 4      G.  $4\frac{1}{2}$   
 H. 5      J.  $5\frac{1}{2}$



13. Here is the graph of a quadratic function and a table of values:



$x$	$f(x)$
-5	-10
-3	2
-2	5
-1	6

The function is symmetric about the line  $x = -1$ . One of the x-intercepts is shown on the graph. The other is \_\_\_\_\_.

- A. between  $-1$  and  $0$       B. between  $1$  and  $2$   
 C. between  $2$  and  $3$       D. between  $3$  and  $4$

14. A quadratic function is symmetric about the line  $x = 5$ . Using the table below to approximate one of the  $x$ -intercepts, the other  $x$ -intercept is \_\_\_\_\_.

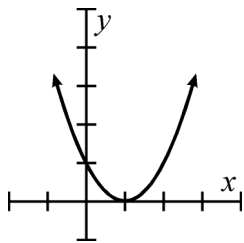
$x$	$y$
5	12
6	6
7	2
8	-1

- F. between 1 and 2      G. between 2 and 3  
H. between 3 and 4      J. between 4 and 5
15. What is the *maximum* value of the function  $y = -2x^2 + 4x + 3$ ?
- A. -2      B. 1      C. 3      D. 5
16. Does the parabola  $y = 3(x - 1)^2 - 4$  contain a maximum or minimum point; what is the maximum or minimum value of  $y$ ?
- F. maximum point; 4      G. minimum point; -4  
H. maximum point; 1      J. minimum point; 1
17. Determine which quadratic function has a larger minimum.

$$f(x) = x^2 + 2x - 3$$

$x$	-2	-1	0	1	2
$g(x)$	-5	-6	-5	-2	3

- A.  $f(x)$ ; minimum = -3      B.  $g(x)$ ; minimum = -6  
C.  $g(x)$ ; minimum = -2      D.  $f(x)$ ; minimum = -4
18. Which is *not* true of the parabola?



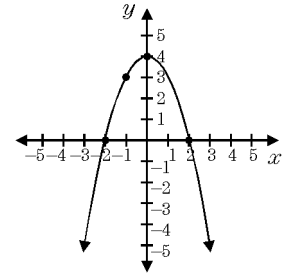
- F. the  $y$ -intercept is  $(0, 1)$   
G. the  $x$ -intercept is  $(1, 0)$   
H. the axis of symmetry is  $y = 1$   
J. the axis of symmetry is  $x = 1$

19. What are the  $x$ -intercepts of  $x^2 - 3x = 4$ ?

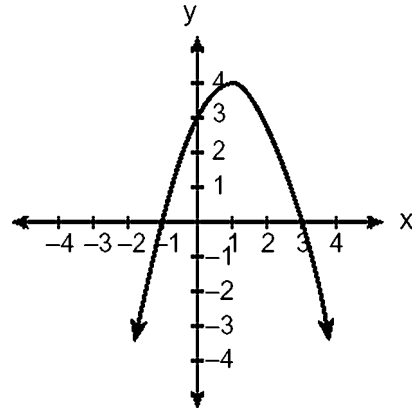
- A.  $\{-1, 4\}$       B.  $\{1, -4\}$   
C.  $\{-1, -4\}$       D.  $\{1, 4\}$

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

- F.  $y = x^2 + 4$   
G.  $y = x^2 - 4$   
H.  $y = -x^2 + 4$   
J.  $y = -x^2 - 4$



21. Which is an equation of the parabola shown in the accompanying diagram?



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

22. What is the  $y$ -intercept of the parabola whose equation is  $y = x^2 + 5x - 6$ ?

- F. 1      G. -1      H. 6      J. -6

23. Which is an equation of a parabola which does *not* pass through the origin?

- A.  $y = \frac{1}{2}x^2$       B.  $y = x^2 - 2x$   
C.  $y = x^2 - 2x + 2$       D.  $y = 2x^2$

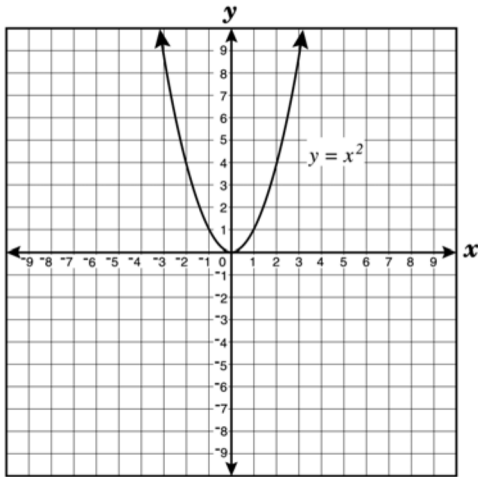
24. What is the minimum point of the graph of the equation  $y = 2x^2 + 8x + 9$ ?

- F.  $(2, 33)$       G.  $(2, 17)$   
H.  $(-2, -15)$       J.  $(-2, 1)$

25. Which is true of the graph of the parabola whose equation is  $y = x^2 - 2x - 8$ ?

- A. The x-intercepts are at  $x = 2$  and  $x = -4$ .
- B. The only x-intercept is at  $x = 4$ .
- C. The x-intercepts are at  $x = 4$  and  $x = -2$ .
- D. There are no x-intercepts.

26. The following is the graph of the equation  $y = x^2$ , in which  $y$  is a function of  $x$ .



Which of these describes the *range* of the function?

- F.  $x$  is all real numbers
- G.  $y$  is all real numbers
- H.  $y \geq 0$
- J.  $x \geq 0$

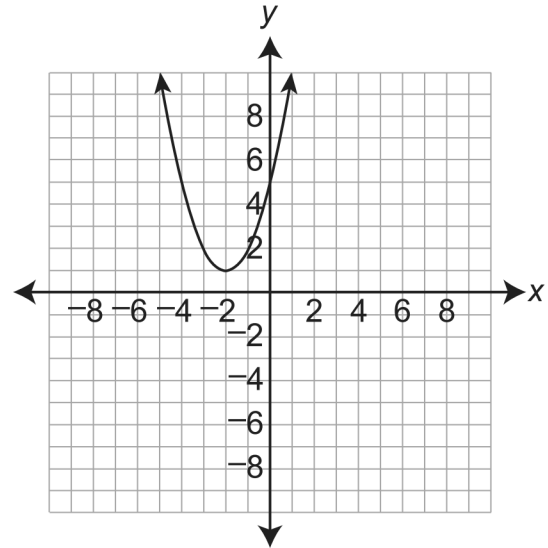
27. Which quadratic function, when graphed, has x-intercepts of 4 and  $-3$ ?

- A.  $y = (x - 3)(x + 4)$
- B.  $y = (x + 3)(2x - 8)$
- C.  $y = (3x - 1)(4x + 1)$
- D.  $y = (3x + 1)(8x - 2)$

28. Which function represents the graph having x-intercepts at  $-3$  and  $2$  and passing through  $(3, 12)$ ?

- F.  $y = \frac{1}{2}(x + 3)(x - 2)$
- G.  $y = \frac{1}{2}(x - 3)(x + 2)$
- H.  $y = 2(x + 3)(x - 2)$
- J.  $y = 2(x - 3)(x + 2)$

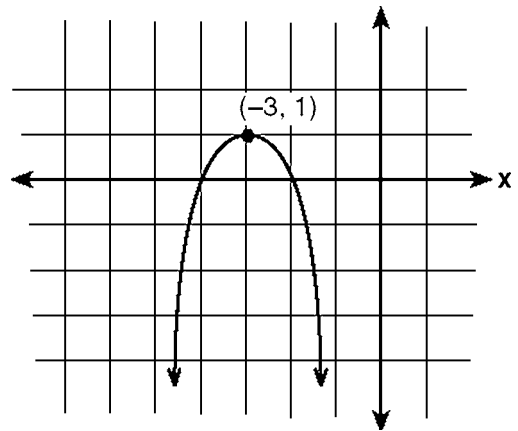
29. A function of  $x$  is graphed below.



Which equation *best* describes the graph?

- A.  $y = x^2 + 5$
- B.  $y = (x - 2)^2 + 1$
- C.  $y = (x + 2)^2 + 1$
- D.  $y = (x + 2)(x - 1)$

30. Which equation represents the parabola shown in the accompanying graph?



- F.  $f(x) = (x + 1)^2 - 3$
- G.  $f(x) = -(x - 3)^2 + 1$
- H.  $f(x) = -(x + 3)^2 + 1$
- J.  $f(x) = -(x - 3)^2 - 3$

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GRAPHS OF PARABOLAS 1 1/17/2018

1.  
Answer: B  
Objective: F.IF.4
2.  
Answer: H  
Objective: F.IF.4
3.  
Answer: A  
Objective: F.IF.4
4.  
Answer: J  
Objective: F.IF.4
5.  
Answer: D  
Objective: F.IF.4
6.  
Answer: H  
Objective: L.04D
7.  
Answer: A  
Objective: F.IF.4
8.  
Answer: G  
Objective: F.IF.4
9.  
Answer: C  
Objective: L.04D
10.  
Answer: F  
Objective: L.04D
11.  
Answer: C  
Objective: F.IF.4
12.  
Answer: H  
Objective: F.IF.7A
13.  
Answer: B  
Objective: F.IF.7A

14.  
Answer: G  
Objective: F.IF.7A
15.  
Answer: D  
Objective: L.04D
16.  
Answer: G  
Objective: L.04D
17.  
Answer: D  
Objective: L.04D
18.  
Answer: H  
Objective: A2.F.1.3
19.  
Answer: A  
Objective: A.7d
20.  
Answer: H
21.  
Answer: A
22.  
Answer: J
23.  
Answer: C
24.  
Answer: J
25.  
Answer: C
26.  
Answer: H
27.  
Answer: B
28.  
Answer: H
29.  
Answer: C
30.  
Answer: H