

Select the best answer.

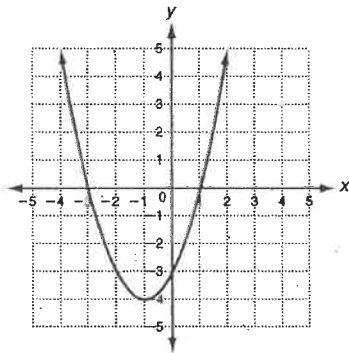
1. Which is a quadratic function?

- A  $3x + y^2 = 5$       C  $y = 3x + 5$   
 B  $3x^2 + y = 5$       D  $x = 3y + 5$

2. Which function has a graph that opens downward?

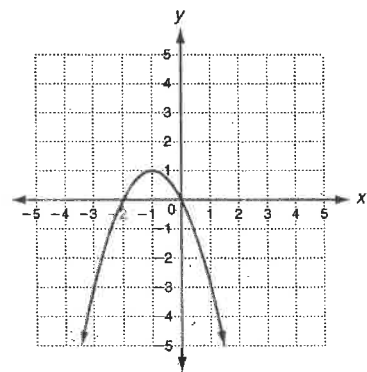
- F  $-x^2 + y = 0$       H  $-y = x^2 + 1$   
 G  $x^2 - y = 0$       J  $y = x^2 - 1$

3. What is the vertex of the parabola graphed below?



- A  $(-3, 0)$       C  $(1, 0)$   
 B  $(-4, -1)$       D  $(-1, -4)$

4. What are the zeros of the function graphed below?

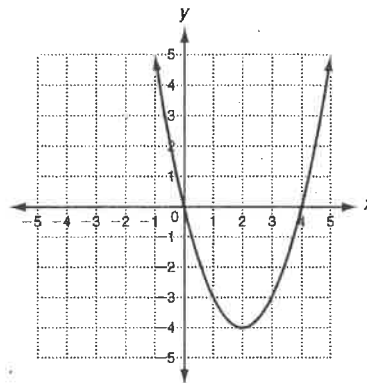


- F  $-1$  and  $0$       H  $0$  and  $1$   
 G  $-2$  and  $0$       J  $0$  and  $2$

5. What is the vertex of the graph of  $y = -2x^2 + 8x - 3$ ?

- A  $(2, 5)$       C  $(-2, 5)$   
 B  $(-2, -27)$       D  $(4, -11)$

6. What function is shown on the graph below?



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

7. The height in feet of a rocket launched from the ground can be modeled by the function  $f(x) = -16x^2 + 96x$ , where  $x$  is the time in seconds after it is launched. What is the rocket's maximum height?

- A 144 feet      C 288 feet  
 B 240 feet      D 432 feet

8. Which function's graph has an axis of symmetry of  $x = 2$ ?

- F  $y = -3x^2 - 12x + 6$   
 G  $y = 3x^2 - 6x + 12$   
 H  $y = 3x^2 + 12x + 6$   
 J  $y = -3x^2 + 12x + 6$

9.  $f(x) = x^2$  and  $g(x) = 3x^2 + 1$ . Which statement is true?

- A  $g(x)$  is wider than  $f(x)$ .  
 B  $g(x)$  is narrower than  $f(x)$ .  
 C  $g(x)$  and  $f(x)$  have the same vertex.  
 D  $g(x)$  and  $f(x)$  have different axes of symmetry.

10. Which function has a vertex different from the vertex of the graph of  $f(x) = 2x^2 + 1$ ?

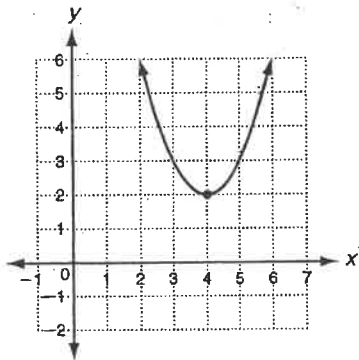
- F  $g(x) = x^2 + 4$       H  $g(x) = x^2 + 1$   
 G  $g(x) = 3x^2 + 1$       J  $g(x) = -2x^2 + 1$

11) Which function is quadratic?

A  $3x - 2y = 5$

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

12) The vertex of this parabola shows that the \_\_\_\_\_ value of the function is \_\_\_\_\_.



A maximum, 2

C minimum, 2

B maximum, 4

D minimum, 4

13) Which table of values would you use to graph  $y = 3x^2$ ?

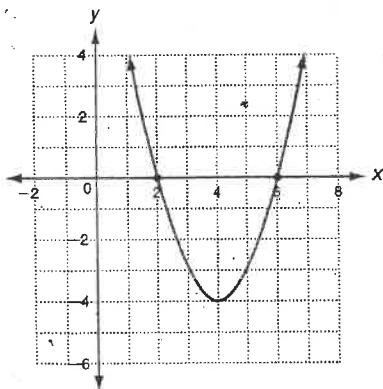
A

x	-2	-1	0	1	2
y	12	3	0	3	12

B

x	-2	-1	0	1	2
y	36	9	0	9	36

14) Find the zeros of  $y = x^2 - 8x + 12$  from its graph below.



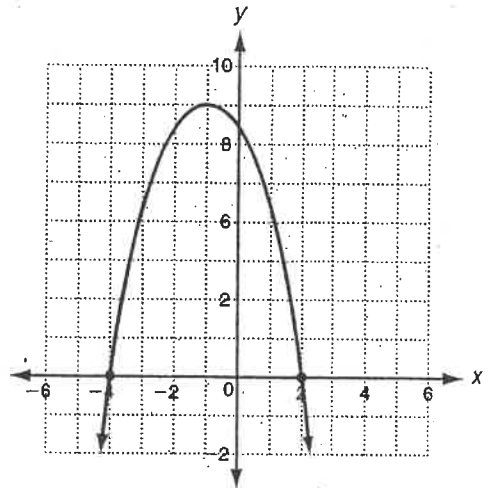
A -2 and -6

C 2 and 6

B 0 and 4

D 4 and -4

15) Find the axis of symmetry of this parabola.



A  $x = -2$

C  $x = 1$

B  $x = -1$

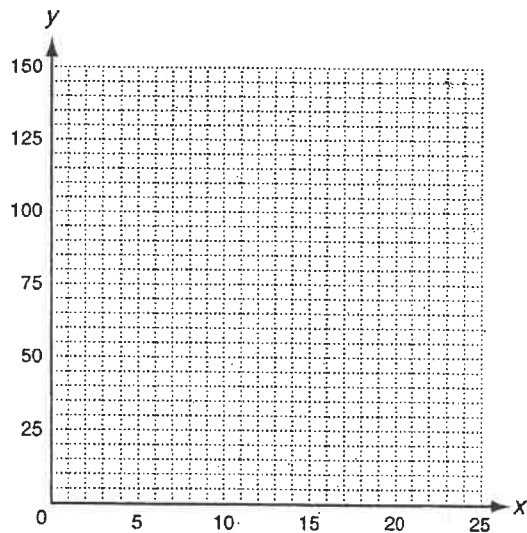
D  $x = 3$

16) If you graph  $y = x^2 - 6x + 9$ , the y-intercept would be \_\_\_\_\_.

A -3

B 9

17) The height of a ball in feet is modeled by  $f(x) = -16x^2 + 96x$ , where  $x$  is the time in seconds after it is hit. How long is the ball in the air?



A 3 s

C 12 s

B 6 s

D 24 s