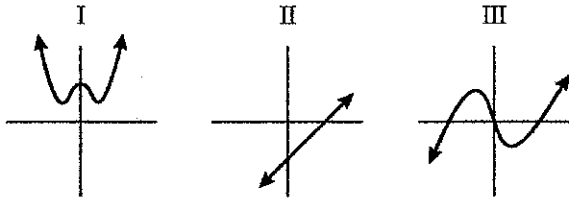


# Characteristics of Polynomials

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

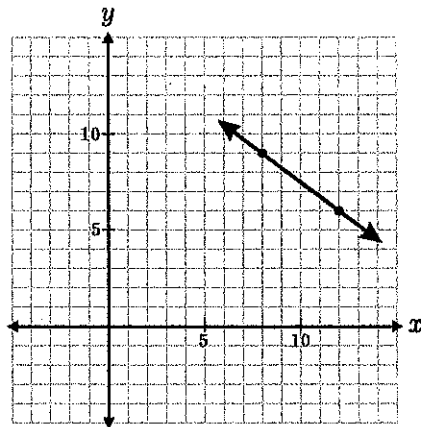
Date: \_\_\_\_\_

1. Which of the following graphs represent an odd function?



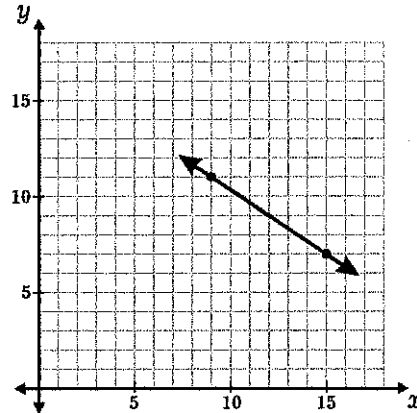
- A. I only                      B. II only  
C. III only                     D. II and III

2. The graph shows a linear function.  
What is the zero of the function?



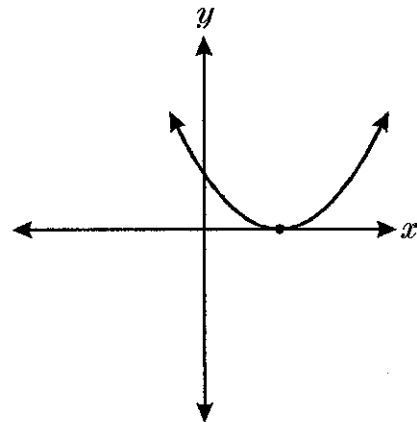
- A. 15      B. 19.5      C. 20      D. 22

3. In the figure, the line contains the point  $(-3, k)$ .  
Find the value of  $k$ .



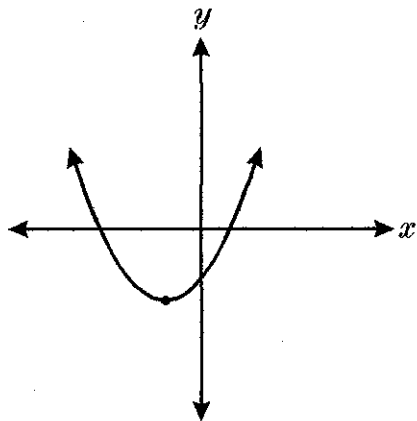
- A. 3      B. 12      C. 18.5      D. 19

4. How many solutions are shown by the graph of the quadratic function?



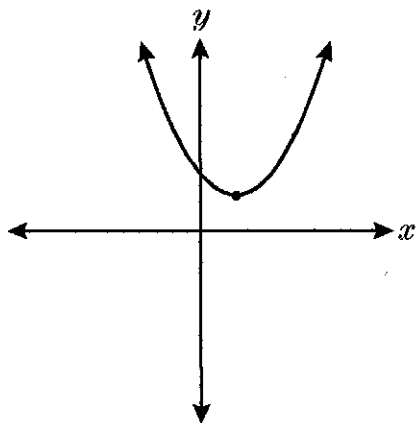
- A. zero      B. one      C. two      D. three

5. How many solutions are shown by the graph of the quadratic function?



- A. zero    B. one    C. two    D. three

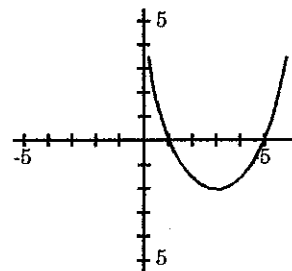
6. How many solutions are shown by the graph of the quadratic function?



- A. zero    B. one    C. two    D. three

7. What are the roots of the graphed function?

- A.  $\{5\}$   
 B.  $\{3, -2\}$   
 C.  $\{1, 5\}$   
 D.  $\emptyset$



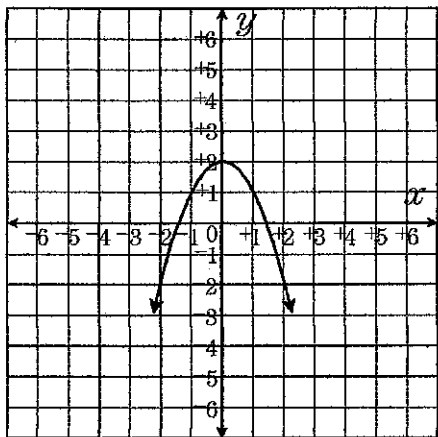
8. The table contains values for  $x$  and  $y$  in a quadratic function.

$x$	$y$
-3	12
-2	0
-1	-8
0	-12
1	-12
2	8
3	0

What are the roots of the function?

- A. 0 and -12                      B. -12, -2 and 3  
 C. -12, 0 and 1                    D. -2 and 3

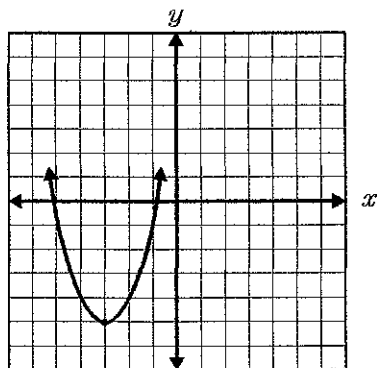
9. The graph of  $y = -x^2 + 2$  is shown below.



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

- A. 0      B. -1      C. -2      D. 2

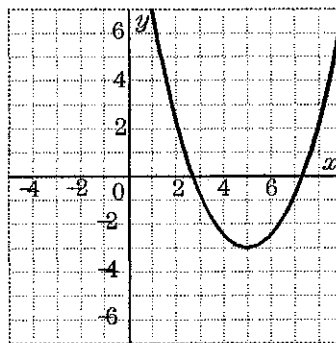
10. The graph of  $y = (x + 3)^2 - 5$  is shown below.



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

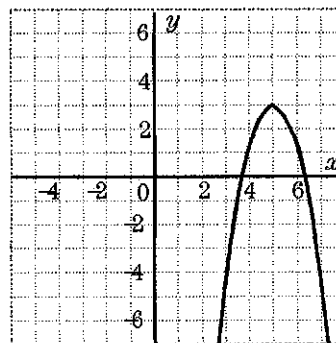
- A. -3      B. -5      C. -2      D. 0

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



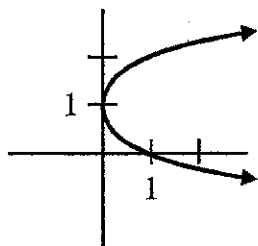
- A. minimum; (5, 3)      B. maximum; (5, 3)  
 C. minimum; (-3, 5)      D. minimum; (5, -3)

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



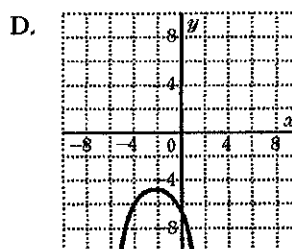
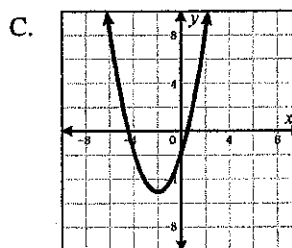
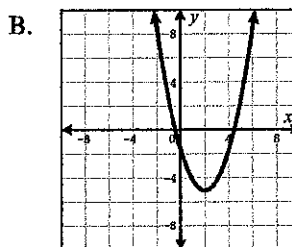
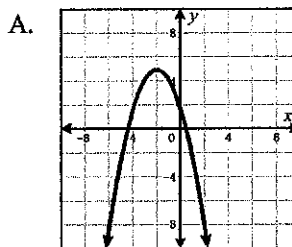
- A. maximum; (5, 3)      B. minimum; (-3, 5)  
 C. maximum; (5, -3)      D. minimum; (5, -3)

13. Which is *not* true of the parabola?

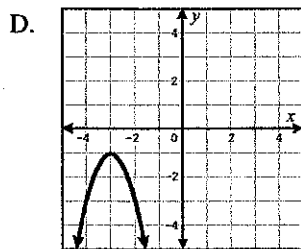
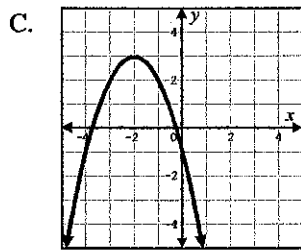
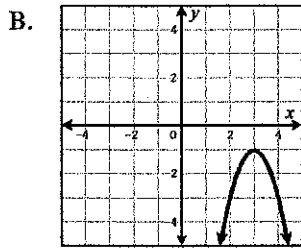
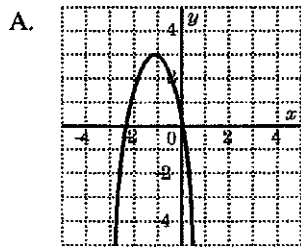


- A. the y-intercept is (0, 1)
- B. the x-intercept is (1, 0)
- C. the axis of symmetry is  $y = 1$
- D. the axis of symmetry is  $x = 1$

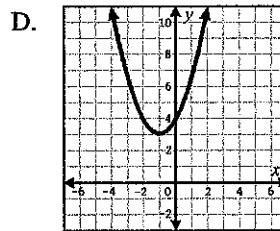
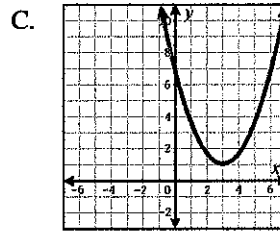
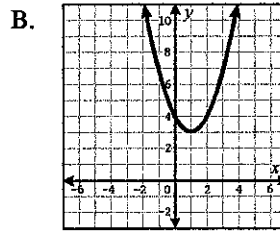
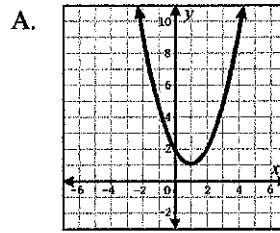
14. Which of the following is the graph of  $f(x) = (x + 2)^2 - 5$ ?



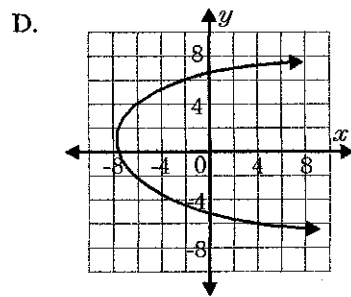
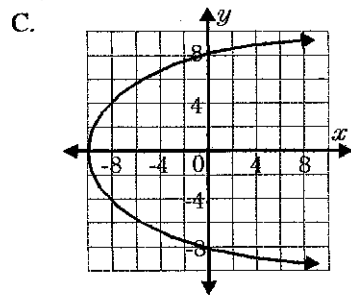
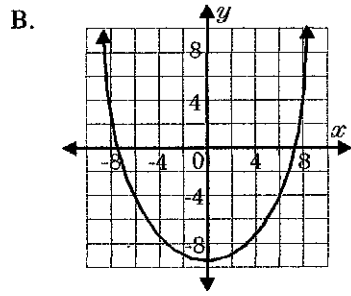
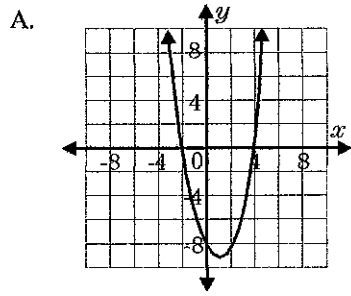
15. Which of the following is the graph of  $y = -2(x + 3)^2 - 1$ ?



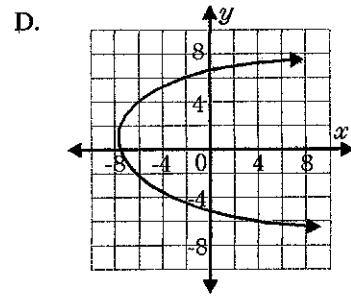
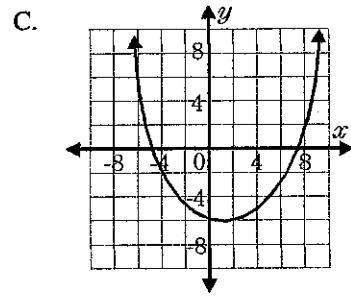
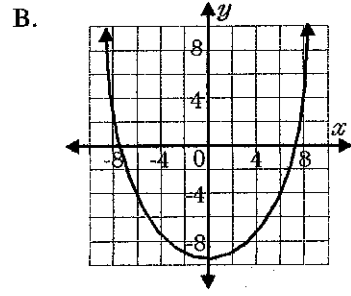
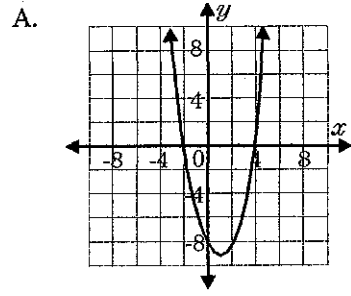
16. Which of the following graphs represents the equation  $y = x^2 - 2x + 4$ ?



17. Which of the following is the graph of the quadratic function  $y = (x + 2)(x - 4)$ ?

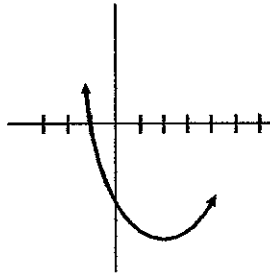


18. Which of the following is the graph of the quadratic function  $y = (x + 5)(x - 7)$ ?

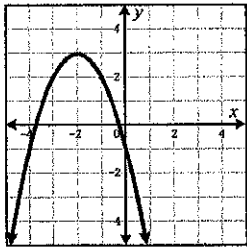


19. The graph of  $y = x^2 - 4x - 5$  is a parabola. (A portion of the graph is shown.) The  $x$ -intercepts of this parabola are  $-1$  and \_\_\_\_\_.

- A. 0      B. 4  
C.  $4\frac{1}{2}$       D. 5



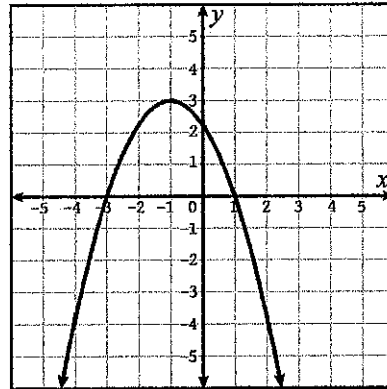
20. Given the graph for one quadratic function and the table of values for another, determine which has a smaller maximum.



$x$	$g(x)$
-3	1
-2	2
-1	1
0	-2
1	-7
2	-14
3	-23

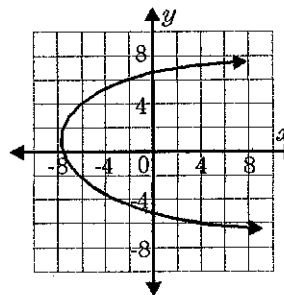
- A.  $g(x)$ , maximum = 2  
B.  $g(x)$ , maximum = -23  
C.  $f(x)$ , maximum = -3  
D.  $f(x)$ , maximum = 3

21. Given the graph below for  $f(x)$  and the equation  $g(x) = -2x^2 + 4x - 3$ , which has the greater maximum?



- A.  $g(x)$ ; maximum = -1  
B.  $f(x)$ ; maximum = -1  
C.  $f(x)$ ; maximum = 3  
D.  $g(x)$ ; maximum = 5

22. Given the following graph and equation, which has the larger range for  $x$ ?



$$x = (y + 5)(y - 3)$$

- A. graph;  $x \geq -8$   
B. equation;  $x \geq -12$   
C. equation;  $x \geq -16$   
D. ranges are equal;  $x \geq -10$