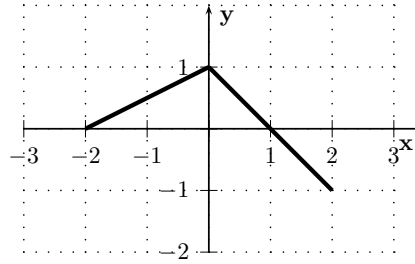
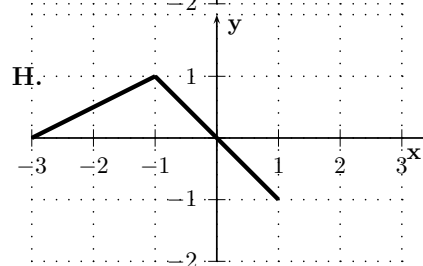
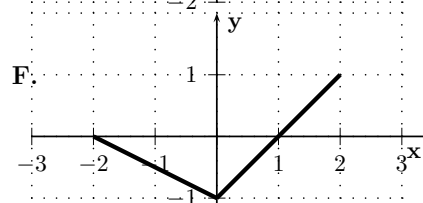
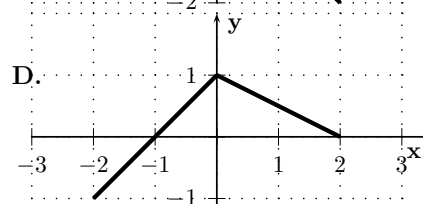
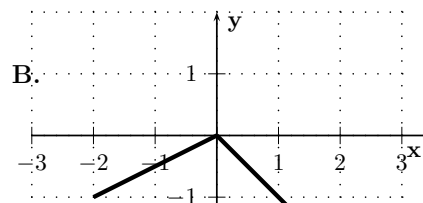
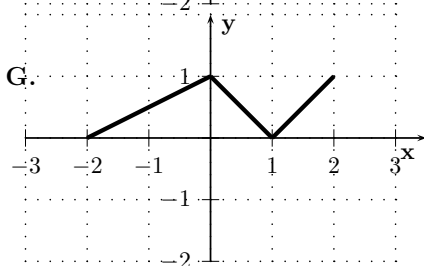
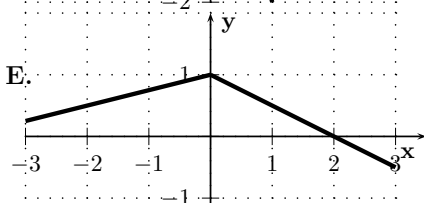
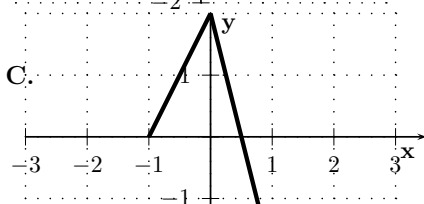
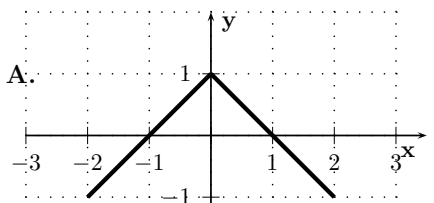


The graph of  $y = f(x)$  is given:

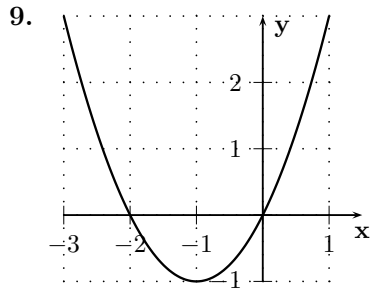


Choose the graph for each of the following functions. An answer may be used more than once.

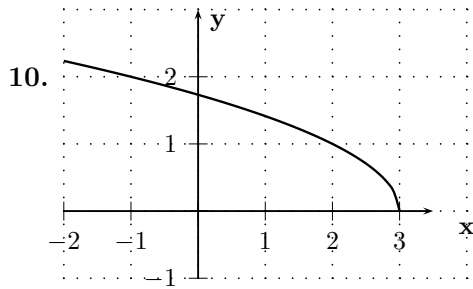
- |                   |                   |                         |                 |
|-------------------|-------------------|-------------------------|-----------------|
| 1. $y = f( x )$   | 2. $y = f(-x)$    | 3. $y = 2f(2x)$         | 4. $y =  f(x) $ |
| 5. $y = f(x + 1)$ | 6. $y = f(x) - 1$ | 7. $y = f(\frac{x}{2})$ | 8. $y = -f(x)$  |



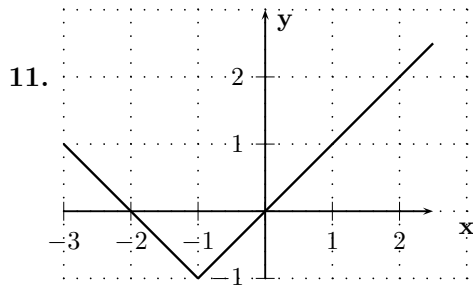
For problems 9-12 choose the equation that yields the given graph.



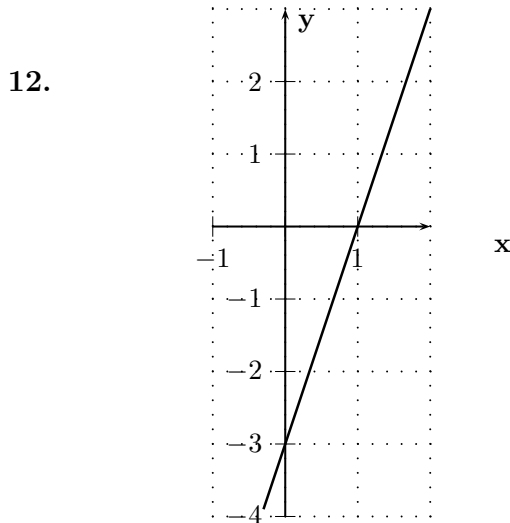
- A.  $y = 2(x + 1)^2$
- B.  $y = (x + 1)^2 + 1$
- C.  $y = (x + 1)^2 - 1$
- D.  $y = (x - 1)^2 + 1$
- E.  $y = (x - 1)^2 - 1$



- A.  $y = \sqrt{3 + x}$
- B.  $y = \sqrt{x + 3}$
- C.  $y = \sqrt{x - 3}$
- D.  $y = \sqrt{3 - x}$
- E.  $y = 3 - \sqrt{x}$



- A.  $y = |x + 1| + 1$
- B.  $y = |x - 1| + 1$
- C.  $y = |x + 1| - 1$
- D.  $y = |x - 1| - 1$
- E.  $y = |x - 2| + 1$



- A.  $y = 1 - 3x$
- B.  $y = 3(x - 1)$
- C.  $y = 2x - 1$
- D.  $y = 3x - 1$
- E.  $y = \frac{1}{3}x - 1$

Answer the following questions for the quadratic function  $f(x) = -3x^2 + 6x + 1$  whose graph is a parabola.

13. The graph of the function opens: A. Up B. Down

14. What is the vertex of the parabola?

- A.  $(-1, -8)$       B.  $(0, 1)$       C.  $(2, 1)$       D.  $(1, 2)$       E.  $(1, 4)$

15. What is the equation of the axis of symmetry for the function?

- A.  $x = 2$       B.  $x = -2$       C.  $x = 1$       D.  $x = -1$       E.  $x = 0$

16. What is the  $y$ -intercept of the function?

- A. 0      B. 1      C. 2      D. 3      E. 4

17. How many  $x$ -intercepts does the function have?

- A. None      B. 1      C. 2      D. 3      E. 4

18. What is the range of the function?

- A.  $\{y|y \geq -1\}$   
B.  $\{y|y \leq -1\}$   
C.  $\{y|y \geq 4\}$   
D.  $\{y|y \leq 4\}$   
E. All real numbers

19. What is the domain of the function?

- A.  $\{x|x \geq 1\}$   
B.  $\{x|x \leq 1\}$   
C.  $\{x|x \geq 4\}$   
D.  $\{x|x \leq 4\}$   
E. All real numbers

20. What is the largest interval on which the function is increasing?

- A.  $(-\infty, 1)$   
B.  $(1, \infty)$   
C.  $(-\infty, 4)$   
D.  $(4, \infty)$   
E. All real numbers

1. A
2. D
3. C
4. G
5. H
6. B
7. E
8. F
9. C
10. D
11. C
12. B
13. B
14. E
15. C
16. B
17. C
18. D
19. E
20. A