

2.5 Homework Piecewise Functions

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3, & \text{if } x \leq 0 \\ 2, & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x + 5, & \text{if } x \leq 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$$

$$h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \leq -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$$

1. $f(2)$ **2**

2. $f(-4)$ **3**

3. $f(0)$ **3**

4. $f\left(\frac{1}{2}\right)$ **2**

5. $g(7)$ **13**

6. $g(0)$ **5**

7. $g(-1)$ **4**

8. $g(3)$ **8**

9. $h(-4)$ **-6**

10. $h(-2)$ **-5**

11. $h(-1)$ **5**

12. $h(6)$ **-9**

Match the piecewise function with its graph.

13. $f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$ **E**

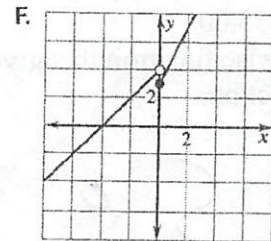
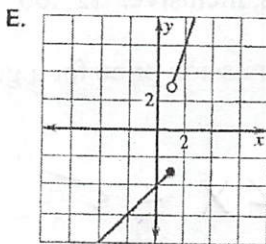
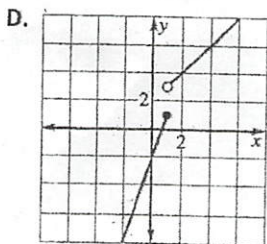
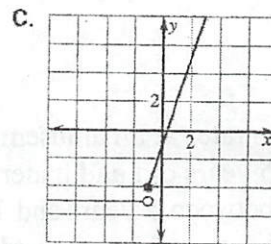
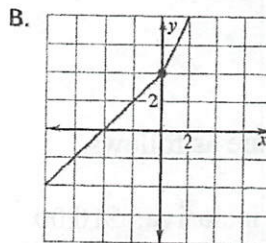
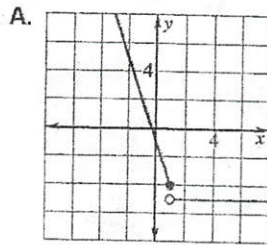
14. $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ **B**

15. $f(x) = \begin{cases} 3x - 2, & \text{if } x \leq 1 \\ x + 2, & \text{if } x > 1 \end{cases}$ **D**

16. $f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$ **F**

17. $f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$ **C**

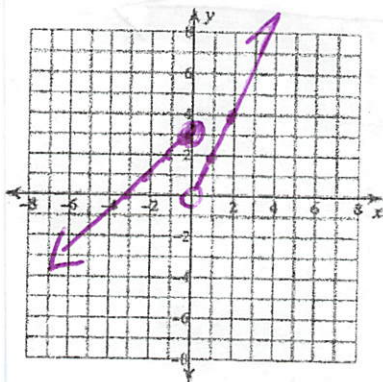
18. $f(x) = \begin{cases} -3x - 1, & \text{if } x \leq 1 \\ -5, & \text{if } x > 1 \end{cases}$ **A**



Graph the function.

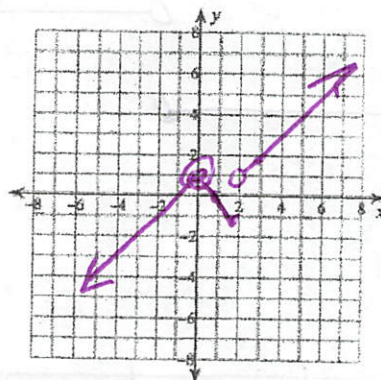
19.

$$f(x) = \begin{cases} x + 3, & \text{if } x \leq 0 \\ 2x, & \text{if } x > 0 \end{cases}$$



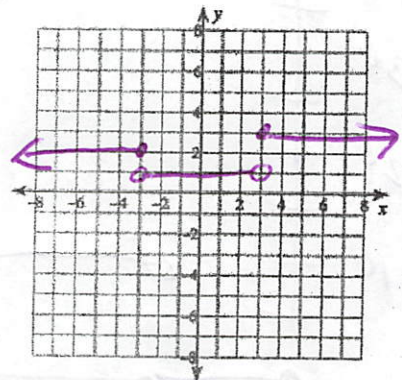
20.

$$f(x) = \begin{cases} x + 1, & \text{if } x < 0 \\ -x + 1, & \text{if } 0 \leq x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$$



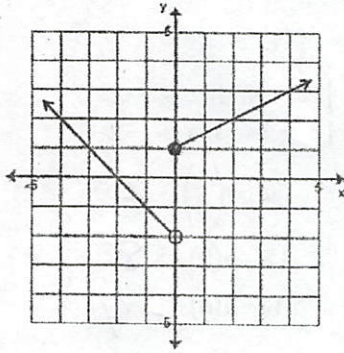
21.

$$f(x) = \begin{cases} 2, & \text{if } x \leq -3 \\ -1, & \text{if } -3 < x < 3 \\ 3, & \text{if } x \geq 3 \end{cases}$$



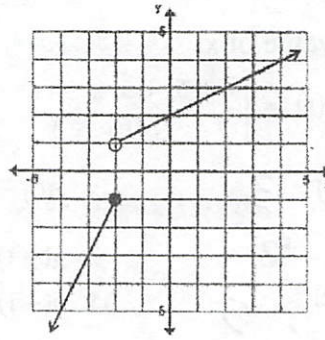
Write the piecewise function for each of the graphs given.

22.



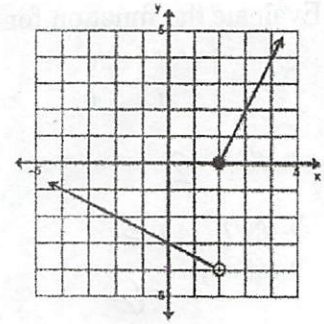
$$f(x) = \begin{cases} -x - 2 & x < 0 \\ 2x + 1 & x \geq 0 \end{cases}$$

23.



$$f(x) = \begin{cases} 2x + 3 & x \leq -2 \\ \frac{1}{2}x + 2 & x > -2 \end{cases}$$

24.



$$f(x) = \begin{cases} -x - 3 & x < 2 \\ 2x - 4 & x \geq 2 \end{cases}$$

25. The admission rates at an amusement park are as follows.

Children 5 years old and under: free

Children between 5 years and 12 years, inclusive: \$10.00

Children between 12 years and 18 years, inclusive: \$25.00

Adults: \$35.00

- Write a piecewise function that gives the admission price for a given age.
- Graph the function.

$$f(x) = \begin{cases} 0 & 0 < x \leq 5 \\ 10 & 5 < x \leq 12 \\ 25 & 12 < x \leq 18 \\ 35 & x > 18 \end{cases}$$

