

1-6 Homework

Piecewise Functions

Evaluate the function for the given value of x .

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

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

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

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|------------|-------------|-------------|--------------------------------|
| 1. $f(2)$ | 2. $f(-4)$ | 3. $f(0)$ | 4. $f\left(\frac{1}{2}\right)$ |
| 5. $g(7)$ | 6. $g(0)$ | 7. $g(-1)$ | 8. $g(3)$ |
| 9. $h(-4)$ | 10. $h(-2)$ | 11. $h(-1)$ | 12. $h(6)$ |

Match the piecewise function with its graph.

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

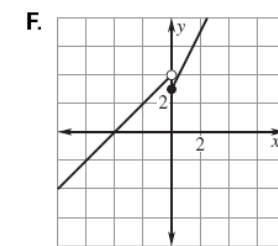
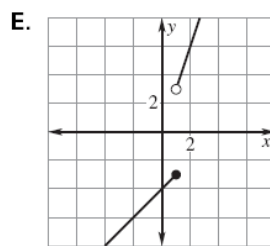
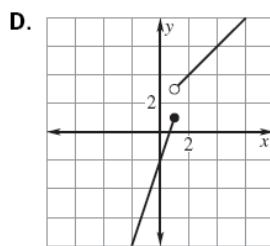
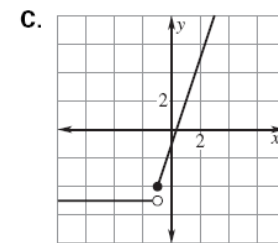
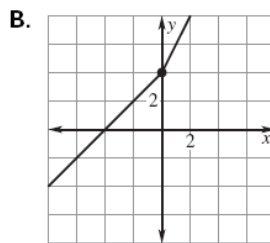
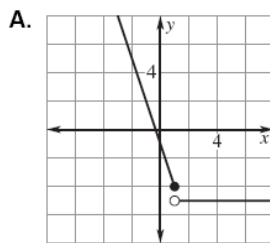
14. $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$

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

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

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

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



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.

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

22. 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.