

Piecewise Functions Practice Worksheet 1

Answers

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. $g(7) = 2(7) - 1 = 13$

6. $g(0) = 0 + 5 = 5$

7. $g(-1) = -1 + 5 = 4$

8. $g(3) = 3 + 5 = 8$

9. $h(-4) = \frac{1}{2}(-4) - 4 = -6$

10. $h(-2) = \frac{1}{2}(-2) - 4 = -5$

11. $h(-1) = 3 - 2(-1) = 5$

12. $h(6) = 3 - 2(6) = -9$

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

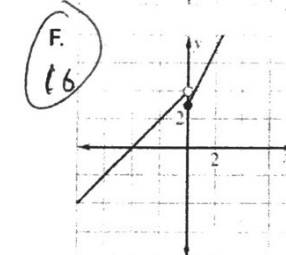
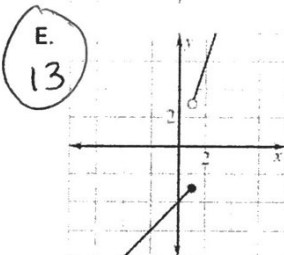
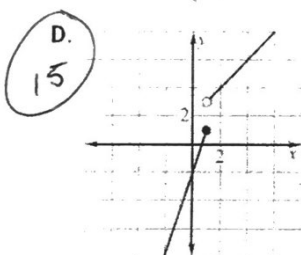
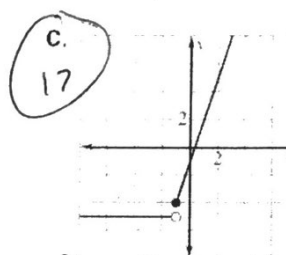
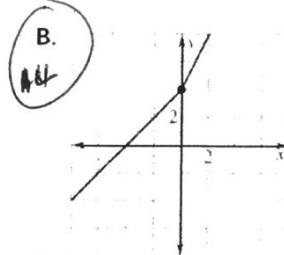
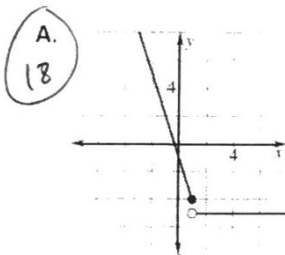
14. $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ B

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 following functions on graph paper.

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 under 5 : free

Children between 5 years and 11 years, inclusive: \$10.00

Children between 12 years and 17 years, inclusive: \$25.00

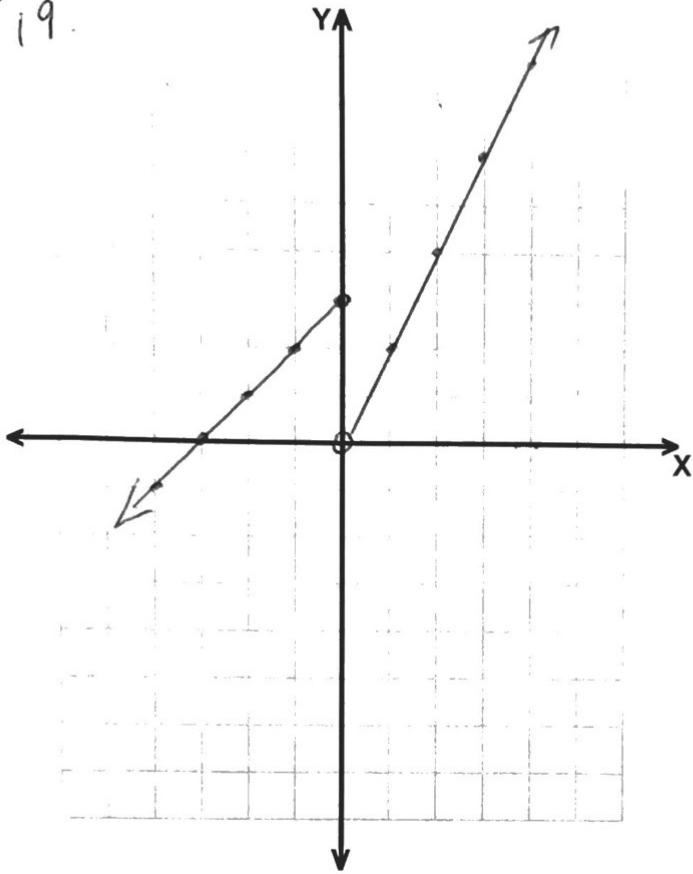
Adults: \$35.00

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

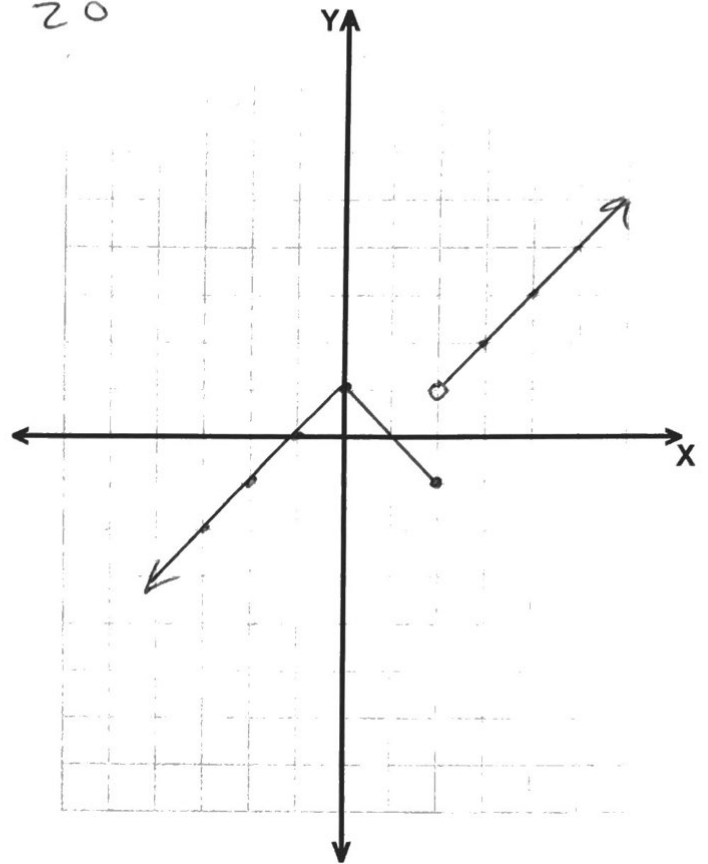
b) Graph the function.

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

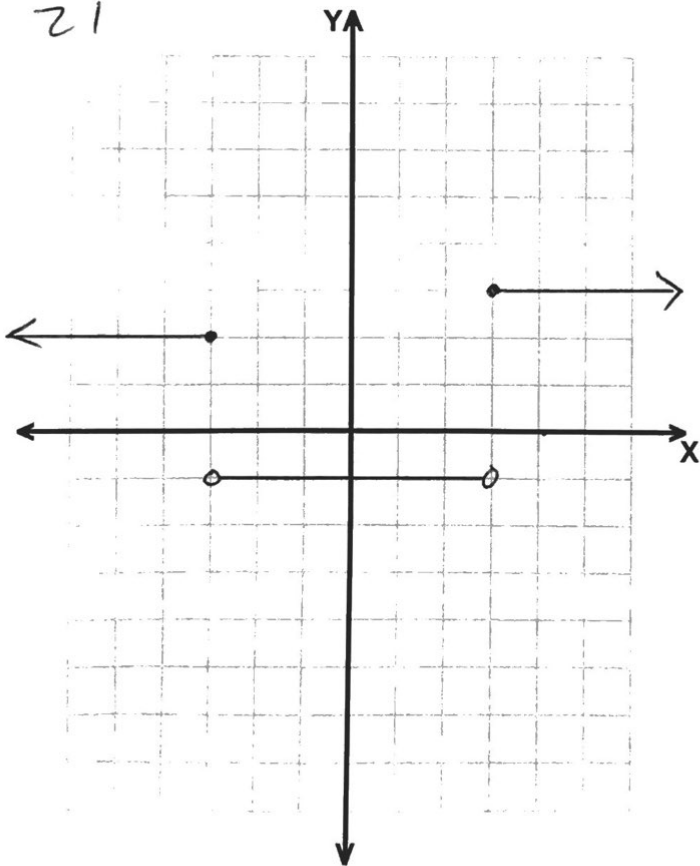
19.



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