LESSON 2.7

NAME _____ DATE _____

Practice B

For use with pages 114–120

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3x - 7, & \text{if } x \le 2 \\ 6 - 2x, & \text{if } x > 2 \end{cases} \qquad g(x) = \begin{cases} 3x + 5, & \text{if } x < 5 \\ -x + 3, & \text{if } x \ge 5 \end{cases} \qquad h(x) = \begin{cases} \frac{2}{3}x + 1, & \text{if } x > -3 \\ 2x - 3, & \text{if } x \le -3 \end{cases}$$

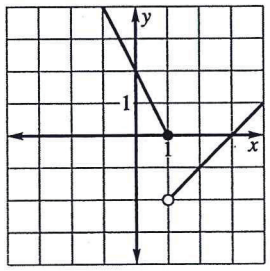
1. $f(0)$
2. $f(2)$
3. $f(4)$
4. $f(-3)$
5. $g(5)$
6. $g(-4)$
7. $g(3)$
8. $g(10)$
9. $h(-9)$
10. $h(-3)$
11. $h(6)$
12. $h(1)$

Graph the function.

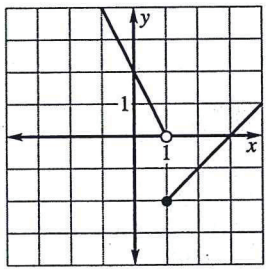
13. $f(x) = \begin{cases} 3, & \text{if } x \le 4 \\ -1, & \text{if } x > 4 \end{cases}$
14. $f(x) = \begin{cases} x + 3, & \text{if } x \le 0 \\ 2x, & \text{if } x > 0 \end{cases}$
15. $f(x) = \begin{cases} x - 4, & \text{if } x < 2 \\ 3 - x, & \text{if } x \ge 2 \end{cases}$
16. $f(x) = \begin{cases} 2x + 3, & \text{if } x \ge -1 \\ -3x + 1, & \text{if } x < -1 \end{cases}$
17. $f(x) = \begin{cases} -x, & \text{if } x > 5 \\ \frac{2}{5}x, & \text{if } x \le 5 \end{cases}$
18. $f(x) = \begin{cases} \frac{1}{2} - x, & \text{if } x > 0 \\ 2x + 3, & \text{if } x \le 0 \end{cases}$
19. $f(x) = \begin{cases} x + 1, & \text{if } x < 0 \\ -x + 1, & \text{if } 0 \le x \le 2 \\ x - 1, & \text{if } x > 2 \end{cases}$
20. $f(x) = \begin{cases} 2x, & \text{if } x \ge -1 \\ 3x, & \text{if } -2 < x < -1 \\ -x, & \text{if } x \le -2 \end{cases}$
21. $f(x) = \begin{cases} 2, & \text{if } x \le -3 \\ -1, & \text{if } -3 < x < 3 \\ 3, & \text{if } x \ge 3 \end{cases}$

Write equations for the piecewise function whose graph is shown.

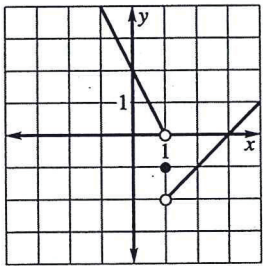
22.



23.



24.



Tour Bus **In Exercises 25 and 26, use the following information.**

A company provides bus tours of historical cities. The given function describes the rate for small groups and the discounted rate for larger groups, where x is the number of people in your group.

$$C = \begin{cases} 8.95x, & \text{if } 0 < x \le 10 \\ 7.50x, & \text{if } x > 10 \end{cases}$$

25. Graph the function.
26. Identify the domain and range of the function.

27. ***Commission Rate*** You are employed by a company in which commission rates are based on how much you sell. If you sell up to \$100,000 of merchandise in a month, you earn 5% of sales as a commission. If you sell over \$100,000, you earn 8% commission on your sales. Write a piecewise function that gives the amount you earn in commission in a given month for x dollars in sales.