

4.7**Practice A**

In Exercises 1–6, evaluate the function.

$$f(x) = \begin{cases} 2x + 3, & \text{if } x < 0 \\ x - 5, & \text{if } x \geq 0 \end{cases}$$

1. $f(-2)$ 2. $f(4)$ 3. $f(1)$
4. $f(0)$ 5. $f\left(-\frac{1}{2}\right)$ 6. $f(10)$

7. On a trip, the total distance (in miles) you travel in x hours is represented by the piecewise function

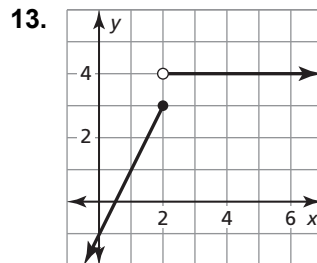
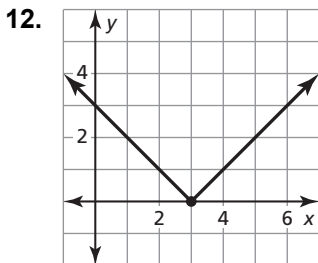
$$d(x) = \begin{cases} 55x, & \text{if } 0 \leq x < 1.5 \\ 82.5, & \text{if } 1.5 \leq x < 4 \\ 82.5 + 320(x - 4), & \text{if } x \geq 4 \end{cases}$$

- a. How far did you travel in 1.5 hours? 3 hours? 4.5 hours?
- b. Write a real situation that could be represented by this piecewise function.

In Exercises 8–11, graph the function. Describe the domain and range.

8. $f(x) = \begin{cases} -x, & \text{if } x < 3 \\ x + 4, & \text{if } x \geq 3 \end{cases}$
9. $f(x) = \begin{cases} -3x, & \text{if } x \leq -1 \\ 3x, & \text{if } x > -1 \end{cases}$
10. $f(x) = \begin{cases} x + 6, & \text{if } x < -2 \\ -2x, & \text{if } x \geq -2 \end{cases}$
11. $f(x) = \begin{cases} -x + 2, & \text{if } x < 0 \\ x - 2, & \text{if } x \geq 0 \end{cases}$

In Exercises 12 and 13, write a piecewise function for the graph.



In Exercises 14–17, write the absolute value function as a piecewise function.

14. $y = |x| + 3$ 15. $y = |x| - 2$
16. $y = |x + 1|$ 17. $y = |x - 4|$