2.7 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** The point (h, k) is the __?__ of the graph of $y = a|x - h| + k$.

2. **WRITING** *Describe* three different types of transformations.

EXAMPLES 1, 2, and 3
on pp. 124–125
for Exs. 3–14

GRAPHING FUNCTIONS Graph the function. *Compare* the graph with the graph of $y = |x|$.

3. $y = |x| - 7$

4. $y = |x + 2|$

5. $y = |x + 4| - 2$

6. $f(x) = |x - 1| + 4$

7. $f(x) = 2|x|$

8. $f(x) = -3|x|$

9. $y = -\frac{1}{3}|x|$

10. $y = \frac{3}{4}|x|$

11. $y = 2|x + 1| - 6$

12. $f(x) = -4|x + 2| - 3$

13. $f(x) = -\frac{1}{2}|x - 1| + 5$

14. $f(x) = \frac{1}{4}|x - 4| + 3$

EXAMPLE 4
on p. 125
for Exs. 15–20

WRITING EQUATIONS Write an equation of the graph.

15.

16.

17.

18.

19.

20.
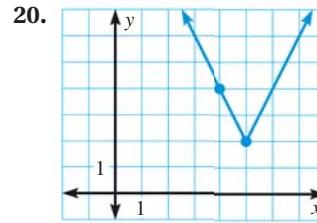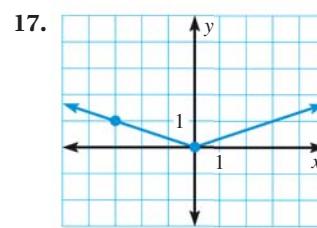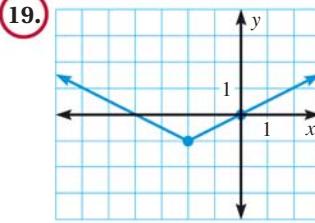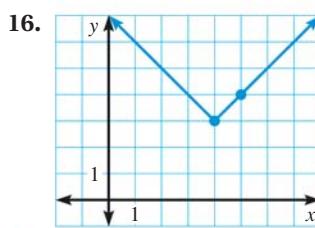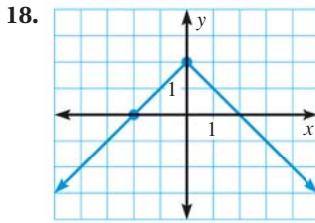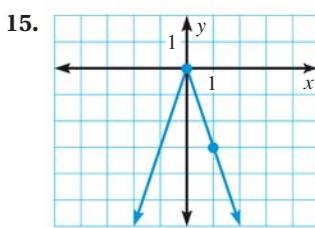
EXAMPLE 5
on p. 126
for Exs. 21–28

TRANSFORMATIONS Use the graph of $y = f(x)$ shown to sketch the graph of the given function.

21. $y = f(x + 2) - 3$

22. $y = f(x - 4) + 1$

23. $y = \frac{1}{2} \cdot f(x)$

24. $y = -3 \cdot f(x)$

25. $y = -f(x - 1) + 4$

26. $y = 2 \cdot f(x + 3) - 1$
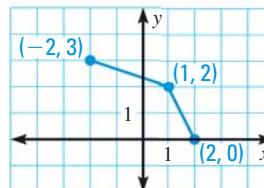
27. ◤ **TAKS REASONING** Create a graph of a function $y = f(x)$. Then sketch the graphs of **(a)** $y = f(x + 3) - 4$, **(b)** $y = 2 \cdot f(x)$, and **(c)** $y = -f(x)$.

28. ◤ **TAKS REASONING** The highest point on the graph of $y = f(x)$ is $(-1, 6)$. What is the highest point on the graph of $y = 4 \cdot f(x - 3) + 5$?

Ⓐ $(-11, 6)$ Ⓑ $(8, 11)$ Ⓒ $(-4, 29)$ Ⓓ $(2, 29)$