14. **OPEN-ENDED MATH** Write a function f such that the graph of f^{-1} is a line with a slope of 3.

EXAMPLE 2 on p. 439 for Exs. 15–21

VERIFYING INVERSE FUNCTIONS **Verify that f and g are inverse functions.**

15. $f(x) = x + 4, g(x) = x - 4$

16. $f(x) = 2x + 3, g(x) = \frac{1}{2}x - \frac{3}{2}$

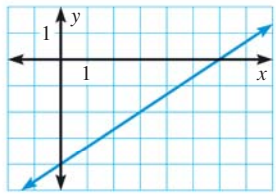
17. $f(x) = \frac{1}{4}x^3, g(x) = (4x)^{1/3}$

18. $f(x) = \frac{1}{5}x - 1, g(x) = 5x + 5$

19. $f(x) = 4x + 9, g(x) = \frac{1}{4}x - \frac{9}{4}$

20. $f(x) = 5x^2 - 2, x \geq 0; g(x) = \left(\frac{x+2}{5}\right)^{1/2}$

21. **MULTI-REPRESENTATION** What is the inverse of the function whose graph is shown?



(A) $g(x) = \frac{3}{2}x - 6$ (B) $g(x) = \frac{3}{2}x + 6$

(C) $g(x) = \frac{2}{3}x - 6$ (D) $g(x) = \frac{3}{2}x + 12$

EXAMPLE 4 on p. 440 for Exs. 22–28

INVERSES OF POWER FUNCTIONS **Find the inverse of the power function.**

22. $f(x) = x^7$

23. $f(x) = 4x^4, x \geq 0$

24. $f(x) = -10x^6, x \leq 0$

25. $f(x) = 32x^5$

26. $f(x) = -\frac{2}{5}x^3$

27. $f(x) = \frac{16}{25}x^2, x \leq 0$

28. **MULTI-REPRESENTATION** What is the inverse of $f(x) = -\frac{1}{64}x^3$?

(A) $g(x) = -4x^3$ (B) $g(x) = 4\sqrt[3]{x}$ (C) $g(x) = -4\sqrt[3]{x}$ (D) $g(x) = \sqrt[3]{-4x}$

EXAMPLE 5 on p. 441 for Exs. 29–43

HORIZONTAL LINE TEST **Graph the function f. Then use the graph to determine whether the inverse of f is a function.**

29. $f(x) = 3x + 1$

30. $f(x) = -x - 5$

31. $f(x) = \frac{1}{4}x^2 - 1$

32. $f(x) = -6x^2, x \geq 0$

33. $f(x) = \frac{1}{3}x^3$

34. $f(x) = x^3 - 2$

35. $f(x) = (x - 4)(x + 1)$

36. $f(x) = |x| + 4$

37. $f(x) = 4x^4 - 5x^2 - 6$

INVERSES OF NONLINEAR FUNCTIONS **Find the inverse of the function.**

38. $f(x) = \frac{3}{2}x^4, x \geq 0$

39. $f(x) = x^3 - 2$

40. $f(x) = \frac{3}{4}x^5 + 5$

41. $f(x) = -\frac{2}{5}x^6 + 8, x \leq 0$

42. $f(x) = \frac{2x^3 - 6}{9}$

43. $f(x) = x^4 - 9, x \geq 0$

44. **REASONING** Determine whether the statement is *true* or *false*. *Explain* your reasoning.

a. If $f(x) = x^n$ where n is a positive even integer, then the inverse of f is a function.

b. If $f(x) = x^n$ where n is a positive odd integer, then the inverse of f is a function.

45. **CHALLENGE** Show that the inverse of any linear function $f(x) = mx + b$, where $m \neq 0$, is also a linear function. Give the slope and y-intercept of the graph of f^{-1} in terms of m and b.