In Exercises 5–10, find the inverse of f informally. Verify that $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

5. $f(x) = 8x$
6. $f(x) = \frac{1}{5}x$
7. $f(x) = x + 10$
8. $f(x) = x - 5$
9. $f(x) = \sqrt[3]{x}$
10. $f(x) = x^5$

In Exercises 11–20, show that f and g are inverse functions (a) algebraically and (b) graphically.

11. $f(x) = 2x, \quad g(x) = \frac{x}{2}$
12. $f(x) = x - 5, \quad g(x) = x + 5$
13. $f(x) = 5x + 1, \quad g(x) = \frac{x - 1}{5}$
14. $f(x) = 3 - 4x, \quad g(x) = \frac{3 - x}{4}$
15. $f(x) = x^3, \quad g(x) = \sqrt[3]{x}$
16. $f(x) = \frac{1}{x}, \quad g(x) = \frac{1}{x}$
17. $f(x) = \sqrt{x - 4}, \quad g(x) = x^2 + 4, \quad x \geq 0$
18. $f(x) = 1 - x^3, \quad g(x) = \sqrt[3]{1 - x}$
19. $f(x) = 9 - x^2, \quad x \geq 0, \quad g(x) = \sqrt{9 - x}, \quad x \leq 9$
20. $f(x) = \frac{1}{1 + x}, \quad x \geq 0$

$g(x) = \frac{1 - x}{x}, \quad 0 < x \leq 1$

In Exercises 21 and 22, does the function have an inverse?

21.

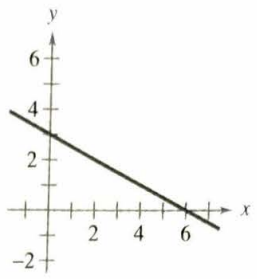
x	-1	0	1	2	3	4
$f(x)$	-2	1	2	1	-2	-6

22.

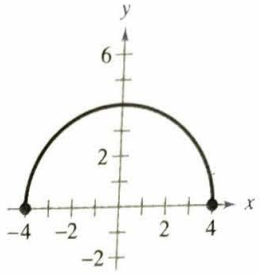
x	-3	-2	-1	0	2	3
$f(x)$	10	6	4	1	-3	-10

In Exercises 23–26, does the function have an inverse?

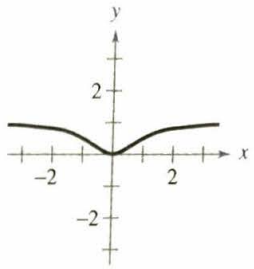
23.



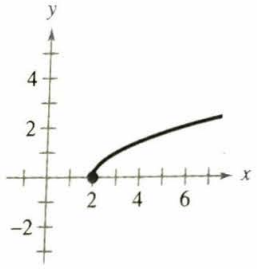
24.



25.



26.



In Exercises 27–32, use a graphing utility to graph the function and use the Horizontal Line Test to determine whether the function has an inverse.

27. $g(x) = \frac{4 - x}{6}$
28. $f(x) = 10$
29. $h(x) = |x + 4| - |x - 4|$
30. $g(x) = (x + 5)^3$
31. $f(x) = -2x\sqrt{16 - x^2}$
32. $f(x) = \frac{1}{8}(x + 2)^2 - 1$

In Exercises 33–42, find the inverse of the function f. Then graph both f and f^{-1} on the same coordinate system.

33. $f(x) = 2x - 3$
34. $f(x) = 3x$
35. $f(x) = x^5$
36. $f(x) = x^3 + 1$
37. $f(x) = \sqrt{x}$
38. $f(x) = x^2, \quad x \geq 0$
39. $f(x) = \sqrt{4 - x^2}, \quad 0 \leq x \leq 2$
40. $f(x) = \frac{4}{x}$
41. $f(x) = \sqrt[3]{x - 1}$
42. $f(x) = x^{3/5}$