Testing for Functions Represented Algebraically In Exercises 17–28, determine whether the equation represents y as a function of x.

17. $x^2 + y^2 = 4$
18. $x = y^2 + 1$
19. $y = \sqrt{x^2 - 1}$
20. $y = \sqrt{x + 5}$
21. $2x + 3y = 4$
22. $x = -y + 5$
23. $y^2 = x^2 - 1$
24. $x + y^2 = 3$
25. $y = |4 - x|$
26. $|y| = 4 - x$
27. $x = -7$
28. $y = 8$

Evaluating a Function In Exercises 29–44, evaluate the function at each specified value of the independent variable and simplify.

29. $f(t) = 3t + 1$
(a) $f(2)$ (b) $f(-4)$ (c) $f(t + 2)$

30. $g(y) = 7 - 3y$
(a) $g(0)$ (b) $g\left(\frac{7}{3}\right)$ (c) $g(s + 2)$

31. $h(t) = t^2 - 2t$
(a) $h(2)$ (b) $h(1.5)$ (c) $h(x + 2)$

32. $V(r) = \frac{4}{3}\pi r^3$
(a) $V(3)$ (b) $V\left(\frac{3}{2}\right)$ (c) $V(2r)$

33. $f(y) = 3 - \sqrt{y}$
(a) $f(4)$ (b) $f(0.25)$ (c) $f(4x^2)$

34. $f(x) = \sqrt{x + 8} + 2$
(a) $f(-4)$ (b) $f(8)$ (c) $f(x - 8)$

35. $q(x) = \dfrac{1}{x^2 - 9}$
(a) $q(-3)$ (b) $q(2)$ (c) $q(y + 3)$

36. $q(t) = \dfrac{2t^2 + 3}{t^2}$
(a) $q(2)$ (b) $q(0)$ (c) $q(-x)$

37. $f(x) = \dfrac{|x|}{x}$
(a) $f(9)$ (b) $f(-9)$ (c) $f(t)$

38. $f(x) = |x| + 4$
(a) $f(5)$ (b) $f(-5)$ (c) $f(t)$

39. $f(x) = \begin{cases} 2x + 1, & x < 0 \\ 2x + 2, & x \geq 0 \end{cases}$
(a) $f(-1)$ (b) $f(0)$ (c) $f(2)$

40. $f(x) = \begin{cases} 2x + 5, & x \leq 0 \\ 2 - x^2, & x > 0 \end{cases}$
(a) $f(-2)$ (b) $f(0)$ (c) $f(1)$

41. $f(x) = \begin{cases} x^2 + 2, & x \leq 1 \\ 2x^2 + 2, & x > 1 \end{cases}$
(a) $f(-2)$ (b) $f(1)$ (c) $f(2)$

42. $f(x) = \begin{cases} x^2 - 4, & x \leq 0 \\ 1 - 2x^2, & x > 0 \end{cases}$
(a) $f(-2)$ (b) $f(0)$ (c) $f(1)$

43. $f(x) = \begin{cases} x + 2, & x < 0 \\ 4, & 0 \leq x < 2 \\ x^2 + 1, & x \geq 2 \end{cases}$
(a) $f(-2)$ (b) $f(1)$ (c) $f(4)$

44. $f(x) = \begin{cases} 5 - 2x, & x < 0 \\ 5, & 0 \leq x < 1 \\ 4x + 1, & x \geq 1 \end{cases}$
(a) $f(-2)$ (b) $f\left(\frac{1}{2}\right)$ (c) $f(1)$

Evaluating a Function In Exercises 45–48, assume that the domain of f is the set $A = \{-2, -1, 0, 1, 2\}$. Determine the set of ordered pairs representing the function f.

45. $f(x) = x^2$
46. $f(x) = x^2 - 3$
47. $f(x) = |x| + 2$
48. $f(x) = |x + 1|$

Evaluating a Function In Exercises 49 and 50, complete the table.

49. $h(t) = \frac{1}{2}|t + 3|$

t	-5	-4	-3	-2	-1
$h(t)$					

50. $f(s) = \dfrac{|s - 2|}{s - 2}$

s	0	1	$\frac{3}{2}$	$\frac{5}{2}$	4
$f(s)$					

Finding the Inputs That Have Outputs of Zero In Exercises 51–54, find all values of x such that $f(x) = 0$.

51. $f(x) = 15 - 3x$
52. $f(x) = 5x + 1$
53. $f(x) = \dfrac{3x - 4}{5}$
54. $f(x) = \dfrac{2x - 3}{7}$

Finding the Domain of a Function In Exercises 55–64, find the domain of the function.

55. $f(x) = 5x^2 + 2x - 1$
56. $g(x) = 1 - 2x^2$
57. $h(t) = \dfrac{4}{t}$
58. $s(y) = \dfrac{3y}{y + 5}$
59. $f(x) = \sqrt[3]{x - 4}$
60. $f(x) = \sqrt[4]{x^2 + 3x}$
61. $g(x) = \dfrac{1}{x} - \dfrac{3}{x + 2}$
62. $h(x) = \dfrac{10}{x^2 - 2x}$
63. $g(y) = \dfrac{y + 2}{\sqrt{y - 10}}$
64. $f(x) = \dfrac{\sqrt{x + 6}}{6 + x}$