

Find an equation for the inverse of each function. (EXAMPLE 3)

8.  $y = 3x + 9$

9.  $y = 5 - 3x$

10. Verify that  $f(x) = 6x - 5$  and  $g(x) = \frac{1}{6}x + \frac{5}{6}$  are inverses of each other. (EXAMPLE 4)

### Practice and Apply

Find the inverse of each relation. State whether the relation is a function. State whether the inverse is a function.

11.  $\{(3, 5), (6, 10), (9, 15)\}$

12.  $\{(2, -3), (3, -4), (4, -2)\}$

13.  $\{(5, 2), (4, 3), (3, 4), (2, 5)\}$

14.  $\{(-1, -6), (0, 2), (1, 2), (3, 6)\}$

15.  $\{(-3, -6), (-1, 2), (1, 2), (3, 6)\}$

16.  $\{(2, 1), (4, 2), (2, 3), (8, 4)\}$

17.  $\{(1, 2), (3, 4), (-3, 4), (-1, 2)\}$

18.  $\{(9, -2), (4, -1), (1, 0), (3, 1), (7, 2)\}$

Find the inverse of each function. State whether the inverse is a function.

19.  $\{(-1, 0), (-2, 1), (4, 3), (3, 4)\}$

20.  $\{(1, 4), (2, 3), (3, 2), (4, 1)\}$

21.  $\{(1, 2), (2, 3), (3, 2), (4, 1)\}$

22.  $\{(3, -2), (2, -3), (1, -2), (0, -1)\}$

23.  $\{(5, 2), (4, 3), (3, 5), (2, 3)\}$

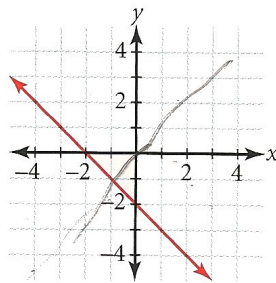
24.  $\{(3, 0), (2, -1), (1, 2), (0, 1), (-1, 2)\}$

25.  $\{(0, 2), (2, 3), (3, 4), (1, 1)\}$

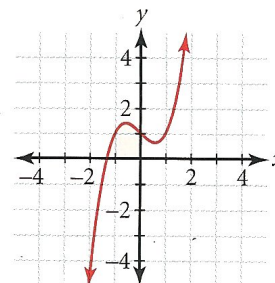
26.  $\{(-1, 2), (-2, 3), (-3, 4), (0, 0)\}$

Determine whether the inverse of each function graphed is also a function.

27.



28.



For each function, find an equation for the inverse. Then use composition to verify that the equation you wrote is the inverse.

29.  $f(x) = 5x + 1$

30.  $g(x) = -2x - 7$

31.  $h(x) = -\frac{1}{2}x + 3$

32.  $g(x) = \frac{x-1}{4}$

33.  $h(x) = \frac{x+8}{3}$

34.  $f(x) = \frac{x-3}{2}$

35.  $f(x) = \frac{2x-3}{4}$

36.  $f(x) = \frac{1}{3}x - 1$

37.  $g(x) = 2x - \frac{3x}{4}$

38.  $h(x) = \frac{1}{4}(x-1)$

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

40.  $h(x) = \frac{3}{2}(x-3) + 2$

Graph each function, and use the horizontal-line test to determine whether the inverse is a function.

41.  $f(x) = 1 - x^2$

42.  $h(x) = -\frac{1}{3}x + 5$

43.  $g(x) = \frac{7-2x}{5}$

44.  $f(x) = 2x^3$

45.  $g(x) = 3$

46.  $h(x) = \frac{3}{x}$

47.  $g(x) = x^4$

48.  $f(x) = x^2 - 2x$

49.  $f(x) = x^5$