

## 4.6 Practice B

In Exercises 1–3, solve  $y = f(x)$  for  $x$ . Then find the input(s) when the output is  $-3$ .

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

2.  $f(x) = 25x^4$

3.  $f(x) = (x - 3)^2 - 4$

In Exercises 4–6, find the inverse of the function. Then graph the function and its inverse.

4.  $f(x) = -3x + 4$

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

6.  $f(x) = \frac{2}{5}x - \frac{1}{5}$

7. Describe and correct the error in finding the inverse function.

$\times$	$f(x) = 3x - 8$ $y = 3x - 8$ $x = 3y - 8$ $g(x) = 3x - 8$
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In Exercises 8–10, find the inverse function. Then graph the function and its inverse.

8.  $f(x) = -9x^2, x \leq 0$

9.  $f(x) = (x - 1)^3$

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

11. Find the inverse of the function  $f(x) = 8x^3$  by switching the roles of  $x$  and  $y$  and solving for  $y$ . Then find the inverse of the function  $f$  by using inverse operations in the reverse order. Which method do you prefer? Explain.

In Exercises 12–15, determine whether the functions are inverse functions.

12.  $f(x) = 6x + 1; g(x) = 6x - 1$

13.  $f(x) = \frac{\sqrt[3]{x-6}}{2}; g(x) = 8x^3 + 6$

14.  $f(x) = \frac{5-x}{2}; g(x) = 5 - 2x$

15.  $f(x) = 4x^2 + 3; g(x) = -\frac{x-3}{4}$

16. The volume of a sphere is given by  $V = \frac{4}{3}\pi r^3$ , where  $r$  is the radius.

a. Find the inverse function. Describe what it represents.

b. Find the radius of a sphere with a volume of 146 cubic meters.