

LESSON
6.4**Practice C**

For use with pages 437–445

Verify that f and g are inverse functions.

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

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

3. $f(x) = x^2 + 2, x \geq 0; g(x) = \sqrt{x - 2}$

4. $f(x) = \frac{1}{3}x^3 - 2; g(x) = \sqrt[3]{3x + 6}$

5. $f(x) = 3x^4 + 1, x \geq 0; g(x) = \sqrt[4]{\frac{1}{3}x - \frac{1}{3}}$

6. $f(x) = \frac{3-x}{x}; g(x) = \frac{3}{x+1}$

Find the inverse of the function.

7. $f(x) = 3 - 2x$

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

9. $f(x) = \sqrt{x - 3}$

10. $f(x) = \sqrt{2x + 5}$

11. $f(x) = 4x^7$

12. $f(x) = 4x^2 + 1, x \geq 0$

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

14. $f(x) = \sqrt[5]{5x + 4}$

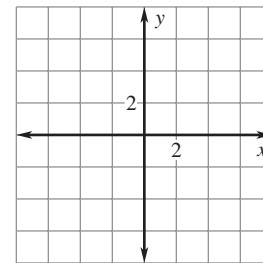
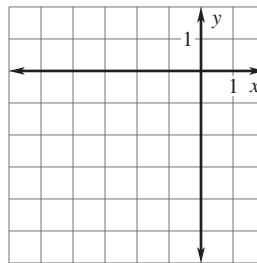
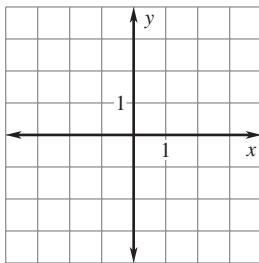
15. $f(x) = |x| + 1, x \geq 0$

Graph the function f . Then use the horizontal line test to determine whether the inverse of f is a function.

16. $f(x) = -x^3 + 1$

17. $f(x) = (x + 3)(x - 1)$

18. $f(x) = \frac{5}{x}$



- 19. Exchange Rates** On a certain day, the number of British pounds P that could be obtained for E euros is modeled by $P = 1.48598E$. Also, the number of euros E that could be obtained for D U.S. dollars is modeled by $E = 1.22660D$. How many U.S. dollars could be obtained for 1000 British pounds?

In Exercises 20–22, use the following information.**Visual Thinking** The function $f(x) = \frac{1}{x}$ is its own inverse.

- 20.** Graph $f(x)$ to verify that it is its own inverse.
- 21.** Verify that $f(x)$ is its own inverse by showing that $f(f(x)) = x$.
- 22.** If $g(x) = af(x)$ where a is a nonzero constant, is it true that $g(x)$ is its own inverse?

