

Practice B

For use with pages 415–420

Find $f(x) + g(x)$ and $f(x) - g(x)$. Simplify your answers.

1. $f(x) = 3x^3 - 2x^2 + 5x - 1$, $g(x) = x^2 + 7x - 1$ 2. $f(x) = 4x^{2/3}$, $g(x) = 3x^{2/3}$
 3. $f(x) = 2x^3 - 3x + 4$, $g(x) = x^2 + 5x - 1$ 4. $f(x) = \frac{1}{2}x^{3/4}$, $g(x) = \frac{1}{8}x^{3/4}$

Find $f(x) \cdot g(x)$. Simplify your answer.

5. $f(x) = -x^2 + 2x + 2$, $g(x) = x + 1$ 6. $f(x) = x^4 + 3x + 2$, $g(x) = x^2 + 3$
 7. $f(x) = 2x^{1/4}$, $g(x) = 2x^{1/3}$ 8. $f(x) = 4x^{-1}$, $g(x) = 2x^{1/2}$

Find $\frac{f(x)}{g(x)}$. Simplify your answer.

9. $f(x) = 3x^2 - x + 1$, $g(x) = x + 3$ 10. $f(x) = 3x + 5$, $g(x) = 2x^2 - 1$
 11. $f(x) = 6x^{7/3}$, $g(x) = 3x^{2/3}$ 12. $f(x) = (3x)^{1/4}$, $g(x) = x^{5/4}$

Find $f(g(x))$ and $g(f(x))$. Simplify your answers.

13. $f(x) = 3x$, $g(x) = 2x + 1$ 14. $f(x) = x^2 + 1$, $g(x) = x - 2$
 15. $f(x) = -x^{1/2}$, $g(x) = x + 4$ 16. $f(x) = 3x^{4/5}$, $g(x) = x^{1/2}$

Let $f(x) = 4x^{1/2}$ and $g(x) = x + 3$. Perform the given operation and state the domain.

17. $f(x) + g(x)$ 18. $g(x) - f(x)$ 19. $f(x) \cdot g(x)$
 20. $\frac{g(x)}{f(x)}$ 21. $f(g(x))$ 22. $g(f(x))$

Furniture Sale In Exercises 23–27, use the following information.

You have a coupon for \$100 off the price of a sofa. When you arrive at the store, you find that the sofas are on sale for 25% off. Let x represent the original price of the sofa.

23. Use function notation to describe your cost, $f(x)$, using only the coupon.
 24. Use function notation to describe your cost, $g(x)$, with only the 25% discount.
 25. Form the composition of the functions f and g that represents your cost, if you use the coupon first, then take the 25% discount.
 26. Form the composition of the functions f and g that represents your cost if you use the discount first, then use the coupon.
 27. Would you pay less for the sofa if you used the coupon first or took the 25% discount first?

Practice B

For use with pages 67–74

Graph the relation. Then tell whether the relation is a function.

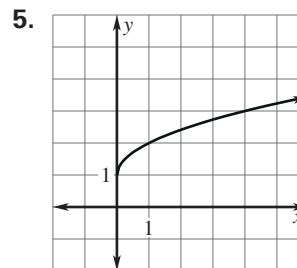
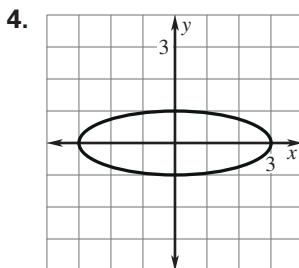
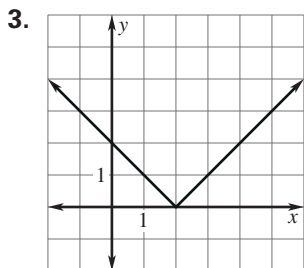
1.

x	-2	-1	0	1	2
y	0	5	6	0	3

2.

x	-2	-1	0	1	2	-2
y	4	-1	3	2	1	-8

Use the vertical line test to determine whether the relation is a function.



Graph the function.

6. $y = 5x + 1$

7. $y = 3x - 7$

8. $y = -2x$

9. $y = -x + 2$

10. $y = \frac{1}{2}x + 3$

11. $y = -3x - 5$

12. $y = 2x + 3$

13. $y = 2$

14. $y = -\frac{1}{3}x + 1$

Decide whether the function is linear. Then find the indicated value of $f(x)$.

15. $f(x) = x + 7$; $f(-3)$

16. $f(x) = x^3 - x + 2$; $f(1)$

17. $f(x) = 4 - 3x$; $f(2)$

18. $f(x) = |3x + 1|$; $f(-5)$

19. $f(x) = \frac{3}{x + 2}$; $f(4)$

20. $f(x) = \frac{3}{4}x - 1$; $f(8)$

21. **Geometry** The surface area of a cube with side length x is given by the function $S(x) = 6x^2$. Find $S(3)$. Explain what $S(3)$ represents.

Statistics In Exercises 22–24, use the following information.

The table below shows the number of games won and lost by the teams in the Eastern Division of the NFL's National Football Conference for the 1996 season.

Team	Won, x	Lost, y
Dallas Cowboys	10	6
Philadelphia Eagles	10	6
Washington Redskins	9	7
Arizona Cardinals	7	9
New York Giants	6	10

22. What is the domain of the relation?

23. What is the range of the relation?

24. Is the number of wins a function of the number of losses?