NAME _____ DATE _____

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 $\dfrac{f(x)}{g(x)}$. 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. $\dfrac{g(x)}{f(x)}$ 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?