

Practice 7-6

Function Operations

1. A boutique prices merchandise by adding 80% to its cost. It later decreases by 25% the price of items that don't sell quickly.
 - a. Write a function $f(x)$ to represent the price after the 80% markup.
 - b. Write a function $g(x)$ to represent the price after the 25% markdown.
 - c. Use a composition function to find the price of an item after both price adjustments that originally costs the boutique \$150.
 - d. Does the order in which the adjustments are applied make a difference? Explain.

Let $f(x) = 4x - 1$ and $g(x) = 2x^2 + 3$. Perform each function operation and then find the domain.

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| 2. $f(x) + g(x)$ | 3. $f(x) - g(x)$ | 4. $f(x) \cdot g(x)$ |
| 5. $\frac{f(x)}{g(x)}$ | 6. $g(x) - f(x)$ | 7. $\frac{g(x)}{f(x)}$ |

Let $f(x) = -3x + 2$, $g(x) = \frac{x}{5}$, $h(x) = -2x^2 + 9$, and $j(x) = 5 - x$. Find each value or expression.

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| 8. $(f \circ j)(3)$ | 9. $(j \circ h)(-1)$ | 10. $(h \circ g)(-5)$ |
| 11. $(g \circ f)(a)$ | 12. $f(x) + j(x)$ | 13. $f(x) - h(x)$ |
| 14. $(g \circ f)(-5)$ | 15. $(f \circ g)(-2)$ | 16. $3f(x) + 5g(x)$ |
| 17. $g(f(2))$ | 18. $g(f(x))$ | 19. $f(g(1))$ |

Let $g(x) = x^2 - 5$ and $h(x) = 3x + 2$. Perform each function operation.

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| 20. $(h \circ g)(x)$ | 21. $g(x) \cdot h(x)$ | 22. $-2g(x) + h(x)$ |
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23. A department store has marked down its merchandise by 25%. It later decreases by \$5 the price of items that have not sold.
 - a. Write a function $f(x)$ to represent the price after the 25% markdown.
 - b. Write a function $g(x)$ to represent the price after the \$5 markdown.
 - c. Use a composition function to find the price of a \$50 item after both price adjustments.
 - d. Does the order in which the adjustments are applied make a difference? Explain.

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