

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.

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.

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.

20. $(h \circ g)(x)$

21. $g(x) \cdot h(x)$

22. $-2g(x) + h(x)$

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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FCAT Practice

Benchmark MA.D.1.4.1

Multiple Choice

Multiply a number by 2, then add 1. Next, subtract the result from the square of itself. Which of the following expressions is formed by the operations described above?

- F. $x^2 - (2x + 1)$
- G. $(2x - 1)^2 + (2x + 1)$
- H. $(2x - 1)^2 - (2x + 1)$
- I. $(2x - 1) - (2x + 1)^2$

(F) (G) (H) (I)

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