# Practice 7-6

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.

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.

43. Sales A car dealer offers a 10% discount off the list price $x$ for any car on the lot. At the same time, the manufacturer offers a \$2000 rebate for each purchase of a car.
   a. Write a function $f(x)$ to represent the price after the discount.
   b. Write a function $g(x)$ to represent the price after the \$2000 rebate.
   c. Suppose the list price of a car is \$18,000. Use a composite function to find the price of the car if the discount is applied before the rebate.
   d. Suppose the list price of a car is \$18,000. Use a composite function to find the price of the car if the rebate is applied before the discount.

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44. Economics Suppose the function $f(x) = 0.12x$ represents the number of U.S. dollars equivalent to $x$ Chinese yuan and the function $g(x) = 9.14x$ represents the number of Mexican pesos equivalent to $x$ U.S. dollars.
   a. Write a composite function that represents the number of Mexican pesos equivalent to $x$ Chinese yuan.
   b. Find the value in Mexican pesos of an item that costs 15 Chinese yuan.

76. Grades Suppose your teacher offers to give the whole class a bonus if everyone passes the next math test. The teacher says she will (1) give everyone a 10-point bonus and (2) increase everyone's grade by 9% of their score.
   a. Let $x$ represent the original test scores. Write statements (1) and (2) as the functions $f(x)$ and $g(x)$, respectively.
   b. Explain the meaning of $f(g(x))$. Evaluate $f(g(75))$.
   c. Explain the meaning of $g(f(x))$. Evaluate $g(f(75))$.
   d. Does $g(f(x)) = f(g(x))$?