5-5 Additional Practice

enVision Algebra2

Function Operations

Let $f(x) = 3x^2 - 9x - 11$ and g(x) = 7 - 4x. Identify rules for the following functions.

2. f - q

1. *f* + *g*

- 3. Suppose demand d for a company's product at cost x is predicted by the function $d(x) = 0.36x^2 + 810$, and that the price p that the company can charge for the product is given by p(x) = x + 14. Find the company's revenue function.
- **4.** Identify the rule and domain for $\frac{f}{q}$ when $f(x) = x^2 5x 36$ and g(x) = x 9.

Let f(x) = 3x - 2 and g(x) = 5x. Identify the rule for the following functions.

- **5.** f(g(3)) **6.** f(g(x))
- 7. Identify the rules for $f \circ g$ and $g \circ f$ when $f(x) = 2x^3$ and g(x) = x 1.
- 8. As a member of the Game Shop rewards program, you get a 12% discount on purchases. All sales are subject to an 8% sales tax. Write functions to model the discount and the sales tax, then identify the rule for the composition function that calculates the final price you pay Games Shop.
- **9.** Describe and correct the error a student made in finding the rule for the composition $f \circ g$ when $f(x) = 2x^2 3x + 1$ and g(x) = 2x 1.

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$$(f \circ g)(x) = f(g(x))$$

= 2(2x - 1)² - 3x + 1
= 2(4x² - 4x + 1) - 3x +
= 8x² - 11x + 3

The cost in dollars to produce x shovels in a factory is given by the function C(x) = 23x + 480. The number of shovels that can be produced in h hours is given by the function N(h) = 30h.

10. Find the rule for C(N(h)). **11.** Find the cost when h = 8 hours.

Let $f(x) = 3x^2 + 2x - 3$ and g(x) = 2x + 4. Identify the rules for the following functions.

12. *f* + *g*