

## Section 4-4

Perform the indicated operation.

1)  $f(t) = 2t + 2$   
 $g(t) = -3t - 1$   
 Find  $(f - g)(t)$

$$5t + 3$$

2)  $g(x) = 3x - 1$   
 $f(x) = -3x^3 - 5x$   
 Find  $(g + f)(x)$

$$-3x^3 - 2x - 1$$

3)  $f(n) = 4n + 4$   
 $g(n) = n^3 - 2n$   
 Find  $(f + g)(n)$

$$n^3 + 2n + 4$$

4)  $h(x) = 3x + 2$   
 $g(x) = x + 1$   
 Find  $(h - g)(x)$

$$2x + 1$$

5)  $h(n) = n + 2$   
 $g(n) = n^2 - 5n$   
 Find  $(h - g)(-10)$

$$-158$$

6)  $g(n) = n - 2$   
 $h(n) = -2n + 4$   
 Find  $(g - h)(-9)$

$$-33$$

7)  $f(x) = 3x + 2$   
 $g(x) = 3x - 5$   
 Find  $(f - g)(7)$

$$7$$

8)  $f(x) = x^2 + 2$   
 $g(x) = 4x$   
 Find  $(f + g)(8)$

$$98$$

9)  $h(x) = -x - 3$   
 $g(x) = 2x^3 - 5 - x$   
 Find  $\left(\frac{h}{g}\right)(x)$

$$\frac{-x - 3}{2x^3 - 5 - x}; x \neq 1.480$$

10)  $f(a) = a^2 + 1$   
 $g(a) = 4a - 2$   
 Find  $(f \cdot g)(a)$

$$4a^3 - 2a^2 + 4a - 2; a \neq \frac{1}{2}$$

11)  $g(x) = -4x + 2$   
 $h(x) = 3x + 5$   
 Find  $\left(\frac{g}{h}\right)(x)$

$$\frac{-4x + 2}{3x + 5}; x \neq -\frac{5}{3}$$

12)  $g(x) = 4x - 4$   
 $h(x) = x^3 - 4x$   
 Find  $(g \cdot h)(x)$

$$4x^4 - 4x^3 - 16x^2 + 16x;$$

$$x \neq 0, 2, -2$$

13)  $g(x) = x^3 - 3$   
 $h(x) = -2x + 1$   
 Find  $\left(\frac{g}{h}\right)(2)$

$$-\frac{5}{3}$$

14)  $g(x) = x - 4$   
 $f(x) = 3x^2 + 5x$   
 Find  $(g \cdot f)(3)$

$$-42$$

15)  $f(a) = a - 1$   
 $g(a) = a^2 - 4$   
 Find  $\left(\frac{f}{g}\right)(0)$

$$\frac{1}{4}$$

16)  $g(x) = 2x - 5$   
 $h(x) = x^2 - 4x$   
 Find  $(g \cdot h)(1)$

$$9$$

17) Marcus is training for a race. Each training session lasts 90 minutes, and consists of both cycling and running. The distance he cycles, in feet, is given by the function  $C(t) = 1320t$ , where  $t$  is the number of minutes he cycles. The distance he runs, in feet, is given by the equation  $R(t) = 660(90 - t)$

a. What function describes the total distance, in feet, that Marcus travels while training?

$$(C+R)(t) = 660t + 59,400$$

b. How many miles would Marcus cover in a training session if he rode his bike for 65 minutes? Hint: 1 mile = 5280 feet

$$660t + 59400; 19.375 \text{ miles}$$

18) Find two linear functions such that  $(f \cdot g)(x) = 8x^2 + 2x$  and  $\left(\frac{f}{g}\right)(x) = 2 + \frac{1}{2x}$ .

$$f(x) = 4x + 1; g(x) = 2x$$