

## Section 4-4

Perform the indicated operation.

$$\begin{aligned} 1) \quad & f(t) = 2t + 2 \\ & g(t) = -3t - 1 \\ & \text{Find } (f - g)(t) \end{aligned}$$

$$\begin{aligned} 2) \quad & g(x) = 3x - 1 \\ & f(x) = -3x^3 - 5x \\ & \text{Find } (g + f)(x) \end{aligned}$$

$$\begin{aligned} 3) \quad & f(n) = 4n + 4 \\ & g(n) = n^3 - 2n \\ & \text{Find } (f + g)(n) \end{aligned}$$

$$\begin{aligned} 4) \quad & h(x) = 3x + 2 \\ & g(x) = x + 1 \\ & \text{Find } (h - g)(x) \end{aligned}$$

$$\begin{aligned} 5) \quad & h(n) = n + 2 \\ & g(n) = n^2 - 5n \\ & \text{Find } (h - g)(-10) \end{aligned}$$

$$\begin{aligned} 6) \quad & g(n) = n - 2 \\ & h(n) = -2n + 4 \\ & \text{Find } (g - h)(-9) \end{aligned}$$

$$\begin{aligned} 7) \quad & f(x) = 3x + 2 \\ & g(x) = 3x - 5 \\ & \text{Find } (f - g)(7) \end{aligned}$$

$$\begin{aligned} 8) \quad & f(x) = x^2 + 2 \\ & g(x) = 4x \\ & \text{Find } (f + g)(8) \end{aligned}$$

$$\begin{aligned} 9) \quad & h(x) = -x - 3 \\ & g(x) = 2x^3 - 5 - x \\ & \text{Find } \left(\frac{h}{g}\right)(x) \end{aligned}$$

$$\begin{aligned} 10) \quad & f(a) = a^2 + 1 \\ & g(a) = 4a - 2 \\ & \text{Find } (f \cdot g)(a) \end{aligned}$$

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

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

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

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

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

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

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?

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

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