

Unit 9.5 Multiply and Divide Operations with Functions PRACTICE

Period _____

Perform the indicated operation.

$$1) \begin{aligned} g(a) &= a^2 - 5a \\ h(a) &= 4a + 1 \\ \text{Find } g(a) \cdot h(a) \end{aligned}$$

$$4a^3 - 19a^2 - 5a$$

$$2) \begin{aligned} g(t) &= t^2 - 3 \\ f(t) &= 3t - 5 \\ \text{Find } (g \cdot f)(t) \end{aligned}$$

$$3t^3 - 5t^2 - 9t + 15$$

$$3) \begin{aligned} f(n) &= n^3 - 4n \\ g(n) &= 3n - 5 \\ \text{Find } (f \cdot g)(n) \end{aligned}$$

$$3n^4 - 5n^3 - 12n^2 + 20n$$

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

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

$$5) \begin{aligned} g(x) &= x^2 - 3x \\ h(x) &= x - 4 \\ \text{Find } g(x) \div h(x) \end{aligned}$$

$$\frac{x^2 - 3x}{x - 4}$$

$$6) \begin{aligned} f(x) &= x^2 - 2 \\ g(x) &= -x + 1 \\ \text{Find } f(x) \cdot g(x) \end{aligned}$$

$$-x^3 + x^2 + 2x - 2$$

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

$$\frac{x^2 + 3}{-3x - 5}$$

$$8) \begin{aligned} h(x) &= 3x \\ g(x) &= 4x + 1 \\ \text{Find } (h \cdot g)(x) \end{aligned}$$

$$12x^2 + 3x$$

$$9) \begin{aligned} f(x) &= x - 4 \\ g(x) &= x + 5 \\ \text{Find } f(0) \cdot g(0) \end{aligned}$$

$$-20$$

$$10) \begin{aligned} g(x) &= 2x + 1 \\ h(x) &= x + 3 \\ \text{Find } (g \cdot h)(4) \end{aligned}$$

$$63$$

$$11) \begin{aligned} f(x) &= -3x + 1 \\ g(x) &= 3x^2 + 4x \\ \text{Find } (f \cdot g)(-1) \end{aligned}$$

$$-4$$

$$12) \begin{aligned} f(n) &= 4n - 5 \\ g(n) &= -3n^3 + 2 \\ \text{Find } f(0) \div g(0) \end{aligned}$$

$$-\frac{5}{2}$$

$$\begin{aligned}
 13) \quad & f(x) = -4x + 3 \\
 & g(x) = x^3 - 4x \\
 & \text{Find } f(5) \div g(5) \\
 & \underline{-\frac{17}{105}}
 \end{aligned}$$

$$\begin{aligned}
 14) \quad & f(n) = 3n - 5 \\
 & g(n) = -n \\
 & \text{Find } (f \cdot g)(3) \\
 & -12
 \end{aligned}$$

$$\begin{aligned}
 15) \quad & f(n) = n^3 - 2 \\
 & g(n) = n + 5 \\
 & \text{Find } f(-3) \div g(-3) \\
 & \underline{-\frac{29}{2}}
 \end{aligned}$$

$$\begin{aligned}
 16) \quad & g(n) = 4n + 3 \\
 & h(n) = n^2 - 3 - n \\
 & \text{Find } \left(\frac{g}{h}\right)(1) \\
 & \underline{-\frac{7}{3}}
 \end{aligned}$$

$$\begin{aligned}
 17) \quad & f(x) = x^2 - 3 \\
 & g(x) = -2x - 1 \\
 & \text{Find } \left(\frac{f}{g}\right)(4x) \\
 & \underline{\frac{16x^2 - 3}{-8x - 1}}
 \end{aligned}$$

$$\begin{aligned}
 18) \quad & g(n) = n - 2 \\
 & h(n) = n^2 - 2 \\
 & \text{Find } g(4x) \div h(4x) \\
 & \underline{\frac{2x - 1}{8x^2 - 1}}
 \end{aligned}$$

$$\begin{aligned}
 19) \quad & g(n) = 4n - 2 \\
 & h(n) = 3n - 4 \\
 & \text{Find } \left(\frac{g}{h}\right)\left(\frac{n}{4}\right) \\
 & \underline{\frac{4n - 8}{-16 + 3n}}
 \end{aligned}$$

$$\begin{aligned}
 20) \quad & g(n) = 3n + 1 \\
 & f(n) = 4n + 3 \\
 & \text{Find } (g \cdot f)(n - 3) \\
 & 12n^2 - 59n + 72
 \end{aligned}$$

$$\begin{aligned}
 21) \quad & g(x) = 4x - 5 \\
 & h(x) = -3x^2 + 5x \\
 & \text{Find } (g \cdot h)(x^2) \\
 & -12x^6 + 35x^4 - 25x^2
 \end{aligned}$$

$$\begin{aligned}
 22) \quad & f(x) = 4x \\
 & g(x) = 3x + 1 \\
 & \text{Find } f\left(\frac{x}{2}\right) \div g\left(\frac{x}{2}\right) \\
 & \underline{\frac{4x}{2 + 3x}}
 \end{aligned}$$

$$\begin{aligned}
 23) \quad & f(t) = 3t - 4 \\
 & g(t) = 2t - 1 \\
 & \text{Find } f\left(\frac{t}{3}\right) \cdot g\left(\frac{t}{3}\right) \\
 & \underline{\frac{2}{3}t^2 - \frac{11}{3}t + 4}
 \end{aligned}$$

$$\begin{aligned}
 24) \quad & g(x) = 4x + 5 \\
 & h(x) = x^3 + 5x \\
 & \text{Find } \left(\frac{g}{h}\right)(2x) \\
 & \underline{\frac{8x + 5}{8x^3 + 10x}}
 \end{aligned}$$