

Unit 9.6 Scalar and Composition Operations with Functions PRACTICE Period _____

Perform the indicated operation.

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

$$2x^3 + 2x + 8$$

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

$$6n - 5$$

$$3) \begin{aligned} f(x) &= 3x + 2 \\ \text{Find } f(f(x)) \end{aligned}$$

$$9x + 8$$

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

$$12x^2 - 20x - 4$$

$$5) \begin{aligned} g(t) &= t^3 + t^2 \\ h(t) &= 2t \\ \text{Find } g(h(t)) \end{aligned}$$

$$8t^3 + 4t^2$$

$$6) \begin{aligned} f(x) &= 2x + 4 \\ g(x) &= 2x - 5 \\ \text{Find } (f \circ g)(x) \end{aligned}$$

$$4x - 6$$

$$7) \begin{aligned} g(n) &= n^3 - 3 \\ h(n) &= 4n - 4 \\ \text{Find } (-5g - 3h)(n) \end{aligned}$$

$$-5n^3 - 12n + 27$$

$$8) \begin{aligned} h(t) &= 3t - 5 \\ \text{Find } h(h(t)) \end{aligned}$$

$$9t - 20$$

$$9) \begin{aligned} g(n) &= n^2 - 5n \\ h(n) &= -n + 2 \\ \text{Find } g(h(9)) \end{aligned}$$

$$84$$

$$10) \begin{aligned} g(x) &= 2x - 3 \\ f(x) &= -x - 3 \\ \text{Find } -2g(-5) - 5f(-5) \end{aligned}$$

$$16$$

$$11) \begin{aligned} h(t) &= t^2 + 2t \\ g(t) &= -2t + 5 \\ \text{Find } 2h(-4) - 3g(-4) \end{aligned}$$

$$-23$$

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

$$-28$$

13) $g(t) = -3t - 4$
 $h(t) = t^2 + t$
Find $g(h(3))$

-40

14) $f(x) = x - 5$
 $g(x) = x^2 + 1$
Find $(f \circ g)(-2)$

0

15) $h(a) = 4a - 5$
 $g(a) = a^2 - 3a$
Find $h(g(6))$

67

16) $f(x) = -x + 4$
 $g(x) = 2x - 3$
Find $(f \circ g)(-6)$

19

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

-20x + 7

18) $g(t) = 4t + 1$
 $f(t) = 2t + 1$
Find $g(f(t + 3))$

8t + 29

19) $f(n) = 3n$
 $g(n) = 4n$
Find $(5f + 3g)(n^2)$

27n²

20) $g(x) = 2x + 5$
 $h(x) = 3x - 5$
Find $g(h(2x))$

12x - 5

21) $g(x) = 2x + 2$
 $h(x) = x^3 + x^2$
Find $(-5g - 4h)(x - 2)$

-4x³ + 20x² - 42x + 26

22) $h(x) = 3x - 2$
 $g(x) = x^2 - 3$
Find $h(g(-4x))$

48x² - 11

23) $f(n) = 4n - 5$
 $g(n) = 2n + 1$
Find $3f(-4n) - 5g(-4n)$

-8n - 20

24) $g(x) = 2x + 4$
 $h(x) = 3x^3 + 4x$
Find $(g \circ h)(-x)$

-6x³ - 8x + 4