

6.5B Composite Functions

Perform the indicated operation.

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

2) $h(n) = -2n + 2$
 $g(n) = n - 2$
 Find $h(g(n))$

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

4) $f(x) = 2x + 4$
 Find $f(f(x))$

5) $g(a) = 2a + 3$
 $h(a) = 2a^3 + 5$
 Find $g(h(a))$

6) $g(n) = 3n + 1$
 $f(n) = -n + 2$
 Find $(g \circ f)(n)$

7) $g(x) = 2x - 1$
 Find $(g \circ g)(x)$

8) $g(n) = 2n - 1$
 $f(n) = -n^3 - n^2$
 Find $(g \circ f)(n)$

9) $h(t) = t - 5$
 $g(t) = 3t - 1$
 Find $(h \circ g)(t)$

10) $f(n) = 2n + 2$
 $g(n) = n^3 + 5n^2$
 Find $(f \circ g)(n)$

11) $g(t) = 2t$
 $h(t) = 2t + 4$
 Find $g(h(8))$

12) $h(x) = 3x + 2$
 $g(x) = -4x - 5$
 Find $(h \circ g)(-5)$

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

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

6.5B Composite Functions

Perform the indicated operation.

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

$$3t^2 - 5$$

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

$$-2n + 6$$

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

$$-9x^3 + 9x + 1$$

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

$$4x + 12$$

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

$$4a^3 + 13$$

$$6) \begin{aligned} g(n) &= 3n + 1 \\ f(n) &= -n + 2 \\ \text{Find } (g \circ f)(n) \end{aligned}$$

$$-3n + 7$$

$$7) \begin{aligned} g(x) &= 2x - 1 \\ \text{Find } (g \circ g)(x) \end{aligned}$$

$$4x - 3$$

$$8) \begin{aligned} g(n) &= 2n - 1 \\ f(n) &= -n^3 - n^2 \\ \text{Find } (g \circ f)(n) \end{aligned}$$

$$-2n^3 - 2n^2 - 1$$

$$9) \begin{aligned} h(t) &= t - 5 \\ g(t) &= 3t - 1 \\ \text{Find } (h \circ g)(t) \end{aligned}$$

$$3t - 6$$

$$10) \begin{aligned} f(n) &= 2n + 2 \\ g(n) &= n^3 + 5n^2 \\ \text{Find } (f \circ g)(n) \end{aligned}$$

$$2n^3 + 10n^2 + 2$$

$$11) \begin{aligned} g(t) &= 2t \\ h(t) &= 2t + 4 \\ \text{Find } g(h(8)) \end{aligned}$$

$$40$$

$$12) \begin{aligned} h(x) &= 3x + 2 \\ g(x) &= -4x - 5 \\ \text{Find } (h \circ g)(-5) \end{aligned}$$

$$47$$

$$13) \begin{aligned} g(t) &= t^3 + 4t \\ f(t) &= t - 2 \\ \text{Find } g(f(4)) \end{aligned}$$

$$16$$

$$14) \begin{aligned} h(x) &= x + 1 \\ g(x) &= 3x - 4 \\ \text{Find } h(g(3)) \end{aligned}$$

$$6$$