

## Unit 9.4 Add and Subtract Operations with Functions EXAMPLE

**Perform the indicated operation.**

1)  $h(a) = -4a - 1$   
 $g(a) = 2a - 2$   
Find  $h(a) - g(a)$

2)  $g(x) = x + 5$   
 $f(x) = x + 4$   
Find  $(g + f)(x)$

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

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

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

6)  $f(x) = x^2 - x$   
 $g(x) = 4x$   
Find  $f(x) - g(x)$

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

8)  $g(a) = 2a + 2$   
 $f(a) = 2a + 4$   
Find  $g(a) - f(a)$

9)  $f(a) = a^2 + 3a$   
 $g(a) = a - 1$   
Find  $(f - g)(10)$

10)  $g(a) = 4a - 4$   
 $h(a) = 4a + 1$   
Find  $(g + h)(8)$

11)  $h(n) = 4n$   
 $g(n) = 3n + 1$   
Find  $h(5) - g(5)$

12)  $f(n) = 2n + 3$   
 $g(n) = n^2 - 1$   
Find  $f(-6) - g(-6)$

13)  $f(x) = -2x^2 + 6x$   
 $g(x) = 2x - 2$   
Find  $f(-5) + g(-5)$

14)  $f(n) = -2n^2 + 4n$   
 $g(n) = 4n + 4$   
Find  $f(-6) - g(-6)$

15)  $h(t) = 3t - 5$   
 $g(t) = t^2 + 2$   
Find  $(h + g)(-7)$

16)  $h(x) = 2x - 2$   
 $g(x) = x + 4$   
Find  $(h - g)(5)$

17)  $f(n) = n^3 - 5n^2$   
 $g(n) = -n + 4$   
Find  $f(4b) - g(4b)$

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

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

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

21)  $f(a) = a^2 + 4a$   
 $g(a) = 3a$   
Find  $f\left(\frac{a}{4}\right) - g\left(\frac{a}{4}\right)$

22)  $g(n) = n^3 - 3$   
 $h(n) = 4n - 5$   
Find  $(g - h)(b + 2)$

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

24)  $g(x) = 4x - 1$   
 $f(x) = x^2 - x$   
Find  $g(x - 1) - f(x - 1)$

## Unit 9.4 Add and Subtract Operations with Functions EXAMPLE

**Perform the indicated operation.**

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

$$-6a + 1$$

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

$$2x + 9$$

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

$$x^2 - 2x - 2$$

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

$$x^2 - x + 3$$

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

$$-3n^2 + 2n$$

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

$$x^2 - 5x$$

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

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

$$8) \begin{aligned} g(a) &= 2a + 2 \\ f(a) &= 2a + 4 \\ \text{Find } g(a) - f(a) \end{aligned}$$

$$-2$$

$$9) \begin{aligned} f(a) &= a^2 + 3a \\ g(a) &= a - 1 \\ \text{Find } (f - g)(10) \end{aligned}$$

$$121$$

$$10) \begin{aligned} g(a) &= 4a - 4 \\ h(a) &= 4a + 1 \\ \text{Find } (g + h)(8) \end{aligned}$$

$$61$$

$$11) \begin{aligned} h(n) &= 4n \\ g(n) &= 3n + 1 \\ \text{Find } h(5) - g(5) \end{aligned}$$

$$4$$

$$12) \begin{aligned} f(n) &= 2n + 3 \\ g(n) &= n^2 - 1 \\ \text{Find } f(-6) - g(-6) \end{aligned}$$

$$-44$$

13)  $f(x) = -2x^2 + 6x$   
 $g(x) = 2x - 2$   
 Find  $f(-5) + g(-5)$   
 -92

14)  $f(n) = -2n^2 + 4n$   
 $g(n) = 4n + 4$   
 Find  $f(-6) - g(-6)$   
 -76

15)  $h(t) = 3t - 5$   
 $g(t) = t^2 + 2$   
 Find  $(h + g)(-7)$   
 25

16)  $h(x) = 2x - 2$   
 $g(x) = x + 4$   
 Find  $(h - g)(5)$   
 -1

17)  $f(n) = n^3 - 5n^2$   
 $g(n) = -n + 4$   
 Find  $f(4b) - g(4b)$   
 $64b^3 - 80b^2 + 4b - 4$

18)  $f(n) = -2n^2 + 5n$   
 $g(n) = n + 1$   
 Find  $(f - g)(3x)$   
 $-18x^2 + 12x - 1$

19)  $g(x) = x^3 - 2$   
 $f(x) = 3x + 2$   
 Find  $g(4x) - f(4x)$   
 $64x^3 - 12x - 4$

20)  $g(t) = -4t - 2$   
 $f(t) = 4t + 3$   
 Find  $g(t^2) + f(t^2)$   
 1

21)  $f(a) = a^2 + 4a$   
 $g(a) = 3a$   
 Find  $f\left(\frac{a}{4}\right) - g\left(\frac{a}{4}\right)$   
 $\frac{4a + a^2}{16}$

22)  $g(n) = n^3 - 3$   
 $h(n) = 4n - 5$   
 Find  $(g - h)(b + 2)$   
 $b^3 + 6b^2 + 8b + 2$

23)  $g(x) = -x - 3$   
 $h(x) = 3x - 4$   
 Find  $(g - h)\left(\frac{x}{2}\right)$   
 $-2x + 1$

24)  $g(x) = 4x - 1$   
 $f(x) = x^2 - x$   
 Find  $g(x - 1) - f(x - 1)$   
 $-x^2 + 7x - 7$