

## Function Composition

**Adding and Subtracting Functions**

1)  $h(t) = -2t - 5$

$g(t) = 3t + 5$

Find  $(h + g)(t)$ 

2)  $g(x) = -2x - 4$

$h(x) = 4x - 2$

Find  $(g + h)(x)$ 

3)  $f(a) = -2a + 4$

$g(a) = -3a^3 - 2$

Find  $(f - g)(a)$ 

4)  $h(x) = 4x + 5$

$g(x) = x^2 + 6x$

Find  $(h - g)(x)$ 

5)  $g(x) = 2x^3 + 2x$

$h(x) = 2x + 2$

Find  $(g + h)(x)$ 

6)  $f(t) = -3t + 2$

$g(t) = -t^2 + 1$

Find  $(f - g)(t)$ **Multiplying Functions.**

7)  $g(n) = -3n - 2$

$f(n) = n^3 - 5n$

Find  $(g \cdot f)(n)$ 

8)  $g(t) = 2t - 3$

$h(t) = t^3 + 5$

Find  $(g \cdot h)(t)$ 

9)  $f(x) = 4x + 4$

$g(x) = x^3 + 4$

Find  $(f \cdot g)(x)$ 

10)  $f(x) = 2x + 1$

$g(x) = x - 5$

Find  $(f \cdot g)(x)$ 

11)  $g(x) = -x^2 + 4$

$f(x) = 4x + 3$

Find  $(g \cdot f)(x)$ 

12)  $f(x) = 3x + 4$

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

Find  $(f \cdot g)(x)$ 

13)  $g(x) = 3x - 5$

$f(x) = -3x$

Find  $(g \cdot f)(x)$ 

14)  $h(x) = x + 4$

$g(x) = -3x^3 + 5x^2 - 2x$

Find  $(h \cdot g)(x)$

## Composition of Functions.

15)  $g(x) = 2x - 1$   
 $f(x) = 3x + 4$   
Find  $(g \circ f)(x)$

16)  $g(t) = -2t$   
 $h(t) = t^2 + t$   
Find  $(g \circ h)(t)$

17)  $g(t) = t + 1$   
 $f(t) = 2t - 3$   
Find  $(g \circ f)(t)$

18)  $g(x) = x + 5$   
 $f(x) = 3x^3 - 3$   
Find  $(g \circ f)(x)$

19)  $h(x) = 4x + 1$   
 $g(x) = x^2 + 5$   
Find  $(h \circ g)(x)$

20)  $g(x) = 4x + 5$   
 $f(x) = 4x - 2$   
Find  $(g \circ f)(x)$

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

22)  $f(x) = x^2 + 4$   
 $g(x) = 2x - 3$   
Find  $(f \circ g)(x)$

23)  $h(n) = 3n + 4$   
 $g(n) = 2n - 4$   
Find  $(h \circ g)(n)$

24)  $g(t) = 2t + 5$   
 $h(t) = -2t^3 - 1$   
Find  $(g \circ h)(t)$

25)  $g(a) = 3a - 5$   
 $h(a) = a + 5$   
Find  $(g \circ h)(a)$

26)  $h(x) = x^2 - 1$   
 $g(x) = 4x - 2$   
Find  $(h \circ g)(x)$

27)  $g(x) = -2x + 3$   
 $h(x) = x^2 + 5$   
Find  $(g \circ h)(x)$

28)  $g(a) = 4a + 1$   
 $f(a) = 4a + 2$   
Find  $(g \circ f)(a)$

29)  $g(n) = 2n - 1$   
 $h(n) = n^2 - n$   
Find  $(g \circ h)(n)$

30)  $g(t) = 4t - 5$   
 $h(t) = t^2 + 5t$   
Find  $(g \circ h)(t)$

## Answers to Function Composition

- |                                 |                              |                                 |                    |
|---------------------------------|------------------------------|---------------------------------|--------------------|
| 1) $t$                          | 2) $2x - 6$                  | 3) $3a^3 - 2a + 6$              | 4) $-x^2 - 2x + 5$ |
| 5) $2x^3 + 4x + 2$              | 6) $t^2 - 3t + 1$            | 7) $-3n^4 - 2n^3 + 15n^2 + 10n$ |                    |
| 8) $2t^4 - 3t^3 + 10t - 15$     | 9) $4x^4 + 4x^3 + 16x + 16$  | 10) $2x^2 - 9x - 5$             |                    |
| 11) $-4x^3 - 3x^2 + 16x + 12$   | 12) $-9x^4 - 12x^3 + 3x + 4$ | 13) $-9x^2 + 15x$               |                    |
| 14) $-3x^4 - 7x^3 + 18x^2 - 8x$ | 15) $6x + 7$                 | 16) $-2t^2 - 2t$                |                    |
| 17) $2t - 2$                    | 18) $3x^3 + 2$               | 19) $4x^2 + 21$                 | 20) $16x - 3$      |
| 21) $2x^3 + 8x^2 + 4$           | 22) $4x^2 - 12x + 13$        | 23) $6n - 8$                    | 24) $-4t^3 + 3$    |
| 25) $3a + 10$                   | 26) $16x^2 - 16x + 3$        | 27) $-2x^2 - 7$                 | 28) $16a + 9$      |
| 29) $2n^2 - 2n - 1$             | 30) $4t^2 + 20t - 5$         |                                 |                    |