

Composite Functions Practice (Day #2)

Application: If you buy a \$40 pair of Marc Anthony jeans from Kohl's, and you have \$10 Kohl's cash and a 20% off coupon, which order should you tell the cashier to apply the discounts?

Perform the indicated operation.

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

2) $h(x) = 2x - 5$
 $g(x) = 4x - 1$
Find $(h \circ g)(-7)$

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

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

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

6) $f(n) = -2n^2 - 2n$
 $g(n) = -3n - 4$
Find $(f \circ g)(2)$

- 1) -70
- 5) 15
- 9) $8x + 19$

- 2) -63
- 6) -180
- 10) $4a^2 - 4a + 4$

- 3) 195
- 7) $-12n + 2$
- 11) $4n^2 - 2n - 2$

- 4) -4
- 8) $16x^2 + 16x + 7$
- 12) $4x - 4$

Answers to Composite Functions Practice (Day #2)

11) $h(n) = n^2 - 3n$
 $g(n) = 2n + 1$
 Find $(h \circ g)(n)$

12) $g(x) = 2x$
 $f(x) = 2x - 2$
 Find $(g \circ f)(x)$

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

10) $f(a) = 4a + 4$
 $g(a) = a^2 - a$
 Find $(f \circ g)(a)$

7) $g(n) = -3n - 1$
 $h(n) = 4n - 1$
 Find $(g \circ h)(n)$

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

Composite Functions Practice (Day #2)

Date _____ Period _____

Application: If you buy a \$40 pair of Marc Anthony jeans from Kohl's, and you have \$10 Kohl's cash and a 20% off coupon, which order should you tell the cashier to apply the discounts?

$$f(x) = x - 10$$

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

$$f(g(40))$$

$$g(40) = 40 - .2(40) = 32$$

$$f(32) = 32 - 10 = \boxed{\$22}$$

$$g(f(40))$$

$$f(40) = 40 - 10 = 30$$

$$g(30) = 30 - .2(30)$$

$$= \boxed{\$24}$$

Perform the indicated operation.

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

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

$$g(4) = -36$$

$$f(g(4)) = f(-36) = 2(-36) + 2$$

$$= \boxed{-70}$$

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

Find $(h \circ g)(-7) = h(g(-7))$

$$g(-7) = 4(-7) - 1 = -29$$

$$h(g(-7)) = h(-29) = 2(-29) - 5 = \boxed{-63}$$

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

$$f(-3) = 4(-3) - 2 = -14$$

$$g(-14) = (-14)^2 - 1$$

$$(g \circ f)(-3) = \boxed{195}$$

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

Find $(g \circ h)(2) = g(h(2))$

$$h(2) = -2 - 3 = -5$$

$$g(h(2)) = g(-5) = -5 + 1$$

$$= \boxed{-4}$$

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

$$h(-5) = (-5)^2 - 4 + 2(-5)$$

$$= 25 - 4 - 10 = 11$$

$$g(11) = 11 + 4$$

$$= \boxed{15}$$

6) $f(n) = -2n^2 - 2n$
 $g(n) = -3n - 4$
 Find $(f \circ g)(2)$

$$g(2) = -3(2) - 4 = -10$$

$$f(-10) = -2(-10)^2 - 2(-10)$$

$$= -200 + 20$$

$$(f \circ g)(2) = \boxed{-180}$$

- 1) -70
- 5) 15
- 9) $8x + 19$

- 2) -63
- 6) -180
- 10) $4a^2 - 4a + 4$

- 3) 195
- 7) $-12n + 2$
- 11) $4n^2 - 2n - 2$

- 4) -4
- 8) $16x^2 + 16x + 7$
- 12) $4x - 4$

Answers to Composite Functions Practice (Day #2)

11) $h(n) = n^2 - 3n$
 $g(n) = 2n + 1$
 Find $(h \circ g)(n)$

$= h(g(n))$

$= h(2n+1)$
 $= (2n+1)^2 - 3(2n+1)$
 $= 4n^2 + 4n + 1 - 6n - 3$
 $= 4n^2 - 2n - 2$

12) $g(x) = 2x$
 $f(x) = 2x - 2$
 Find $(g \circ f)(x)$

$(g \circ f)(x) = g(f(x))$
 $= g(2x-2)$

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

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

$= h(g(x))$

$= h(2x+4)$
 $= 4(2x+4) + 3$
 $= 8x + 16 + 3$
 $= 8x + 19$

10) $f(a) = 4a + 4$
 $g(a) = a^2 - a$
 Find $(f \circ g)(a)$

$= f(g(a))$

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

7) $g(n) = -3n - 1$
 $h(n) = 4n - 1$
 Find $(g \circ h)(n)$

$= g(h(n))$

$= -3(4n-1) - 1$
 $= -12n + 3 - 1$
 $= -12n + 2$

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

$= g(h(x))$

$= g(4x+2)$
 $= (4x+2)^2 + 3$
 $= (4x+2)(4x+2) + 3$
 $= 16x^2 + 8x + 8x + 4 + 3$
 $= 16x^2 + 16x + 7$