Composite Functions: When two functions are combined into one function.

f(g(x)) is read as "f of g of x"

SUBSTITUTION

Given these two functions: $f(x) = 3x^2 - 7$ and $g(x) = 2x+4$

a. Find f(g(3))

$g(3) = 2(3)+4$

$= 10$

Now $f(10) = 3(10)^2 - 7 = 293$

b. find g(f(3))

$f(3) = 3(3)^2 - 7 = 20$

Now $g(20) = 2(20)+4$

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Another way to write a composite is:

$f(g(x)) \rightarrow (f \circ g)(x)$

Use these two functions:

f(x) = x + 5 g(x) = 3x - 2

Find $(g \circ f)(1)$

$g(f(1))$

$f(1) = 1+5 = 6$

Now $g(6) = 3(6)-2$

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given 5x + 4y = 12 and y = 2x - 3

Use substitution to write and equation with only the variable x. Then simplify.

$5x + 4(2x-3) = 12$

$5x + 8x - 12 = 12$

$13x - 12 = 12$

Given f(x) = 11x - 8

Find f(m + 2)

$f(x) = 11x - 8$

$f(m+2) = 11(m+2) - 8$

$11m + 22 - 8 = 11m + 14$

Use these two functions: f(x) = 6x - 5 g(x) = 2x + 3

Find and simplify f(g(x))