Lesson 1.2: Functions and Function Notation

Standard Notation	vs.	Function Notation
$y = x + 3$ Solve for y when $x = 1$. $y = 1 + 3$ $y = 4$		$f(x) = x + 3$ Find $f(1)$. $f(1) = 1 + 3$ $f(1) = 4$

Note: *f* is not a variable.
f(x) does not mean *f* times *x*.
It means: What is the value of the function, *f*, when *x* equals a certain value?

Ex. For each function, determine the values indicated.

1. If $f(x) = 3x^2 - 2x + 1$, find $f(-1)$.

$f(-1) = 3(-1)^2 - 2(-1) + 1$
$= 3 + 2 + 1$
$= 6$

2. If $f(x) = -3x + 2$, find x if $f(x) = 0$.

$0 = -3x + 2$
$3x = 2$
$x = \frac{2}{3}$

3. If $f(x)=x^2-6x$, find x if $f(x)=16$.

$16=x^2-6x$

$0=x^2-6x-16$

$=(x-8)(x+2)$

M −16

A −6

N −8 2

$x=8$ or $x=-2$

4. If $f(x)=2x^2-3x$ and $g(x)=3x-4$,

a) find $3g(2)$

$3g(x)=3(3x-4)$

$3g(2)=3[3(2)-4]$

$=3(2)$

$=6$

b) $f(m+1)$

$f(m+1)=2(m+1)^2-3(m+1)$

$=2(m^2+2m+1)-3m-3$

$=2m^2+4m+2-3m-3$

$=2m^2+m-1$

c) $f(f(x))$

$f(x)=2x^2-3x$

$f(f(x))=2(2x^2-3x)^2-3(2x^2-3x)$

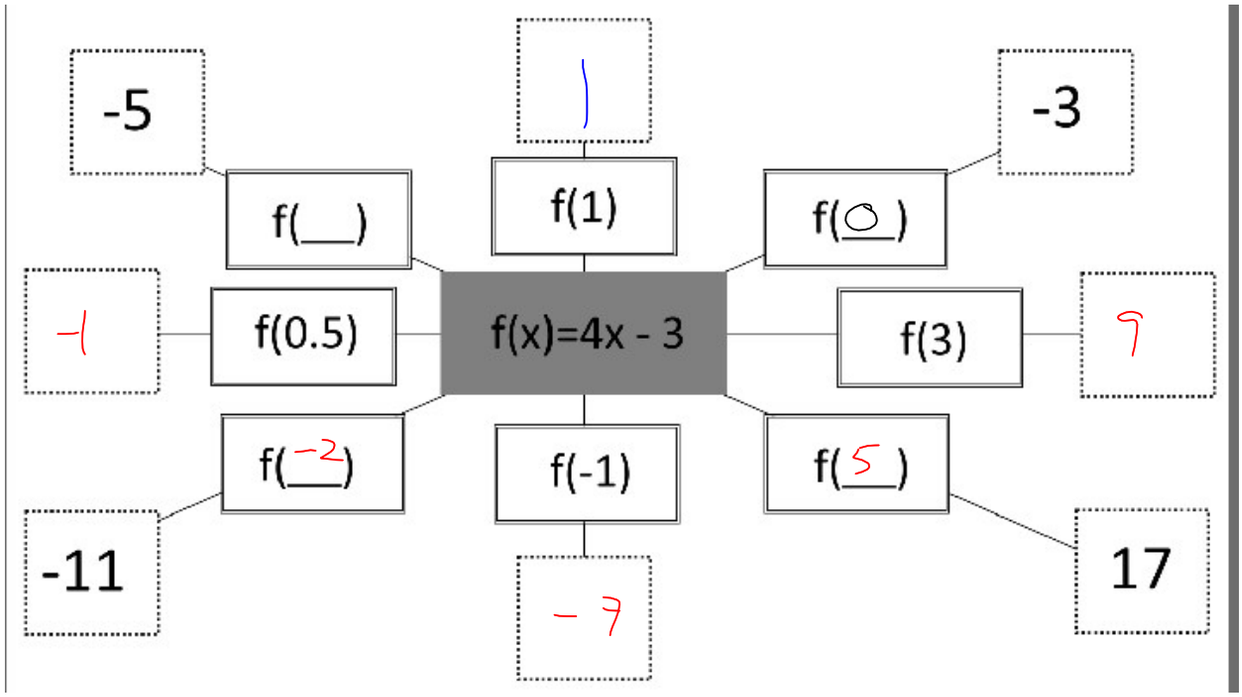
$=2(4x^4-12x^3+9x^2)-6x^2+9x$

$=8x^4-24x^3+18x^2-6x^2+9x$

$=8x^4-24x^3+12x^2+9x$

THINK: Would f(g(x)) be the same as g(f(x))?

??? Play and find out!


-5
1
-3
f(___)
f(1)
f(___)
-1
f(0.5)
f(x)=4x - 3
f(3)
9
f(-2)
f(-1)
f(5)
-11
-7
17

HOMEWORK
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