11.1 Evaluating and Composition of Functions

Objective: I can evaluate functions for a given value.
Objective: I can create new functions using composition.

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Evaluate

$f(x)=3x-7$ for x = 4

$g(t)=5-t$ for t = -2

$h(x)=\frac{x}{2}+3$ for x = 6

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What if you plug in an expression instead of a number?

Example: Evaluate $f(x)=2x-8$ for x=t + 2

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

$= 2t + 4 - 8$

$f(x) = 2t - 4$

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COMPOSITION TASK

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Composition of Functions

When you plug a function into a second function, you are doing *composition of functions.*

$f(g(x))=(f\circ g)(x)$ Plug g(x) into f(x)

$g(f(x))=(g\circ f)(x)$ Plug f(x) into g(x)

ALWAYS work from the INSIDE to the OUTSIDE!

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Example: Find f(g(x)) and g(f(x)).

$f(x)=4x-1$ $g(x)=5+2x$

$= 4(5+2x) - 1$ $= 5 + 2(4x-1)$

$= 20 + 8x - 1$ $= 5 + 8x - 2$

$8x + 19$ $8x + 3$

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Example: Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

$f(x) = \frac{x}{3} - 1$ $g(x) = 3x + 6$

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Evaluate.

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

$f(g(2))$ = 15 ($4^2 - 1$)

$(f \circ g)(-1)$ = 3 ($= 2(-1) = -2$)

$g(f(-3))$ = 16 ($-3^2 - 1 = 8$)

$(g \circ f)(0)$ = -2 ($= 2(2) = 4$, $(-2)^2 - 1$)

Feb 10-10:56 AM

May 8-12:14 PM