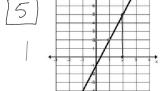


Sect 1	Notes 4-4 Function Operations	Unit 4
Warm Up-		
1. Evaluate the function $f(x) = x^2 - 9$ given the inputs $\{-4, 0, 2, 4\}$.		
$\begin{aligned} f(-4) &= (-4)^2 - 9 = 16 - 9 = 7 \\ f(0) &= 0^2 - 9 = 0 - 9 = -9 \\ f(2) &= 2^2 - 9 = 4 - 9 = -5 \\ f(4) &= 4^2 - 9 = 16 - 9 = 7 \end{aligned}$		

2. Given the graph, what is $f(2)$?



3. Given the table, what is $f(0)$?

x	f(x)
0	7
1	5
2	3
3	1
4	0

Sect 1	Notes 4-4 Function Operations	Unit 4																				
Operations of Functions																						
Ex: $f(x) = x + 4$, $g(x) = 2x + 2$																						
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Example 1: Let $f(x) = x + 8$ and $g(x) = 2x + 2$

$$\begin{aligned} A. (f+g)(x) &= x+8+2x+2 \\ &= 3x+10 \\ B. (g-f)(x) &= 2x+2-(x+8) \\ &= x-6 \\ C. (f \cdot g)(x) &= x \cdot (2x+2) \\ &= 2x^2+2x \\ D. (f/g)(x) &= \frac{x+8}{2x+2} \\ &= \frac{1}{2}x+4 \end{aligned}$$

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Example 2: Let $f(x) = 4x$ and $g(x) = 8x$

$$\begin{aligned} A. (f+g)(x) &= 4x+8x \\ &= 12x \\ B. (g-f)(x) &= 8x-4x \\ &= 4x \\ C. (f \cdot g)(x) &= 4x \cdot 8x \\ &= 32x^2 \\ D. (f/g)(x) &= \frac{4x}{8x} \\ &= \frac{1}{2}x \end{aligned}$$

WHEN DO YOU PUT PARENTHESES?

Subtraction → put them on the function of 2.

Multiplication → put it on the function of 1.

Example 3: Let $f(x) = 4x+1$, $g(x) = 2x$, $h(x) = 8x^2$, and $k(x) = 8x^3$

A. $(f+g)(x) = 4x+2x = 6x$

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

C. $(f \cdot g)(x) = 4x \cdot 2x = 8x^2$

D. $(f/g)(x) = \frac{4x}{2x} = 2$

E. $(h \cdot g)(x) = 8x^3 \cdot 2x = 16x^4$

F. $(g \cdot h)(x) = 2x \cdot 8x^2 = 16x^3$

G. $[2(g+h)](x) = [2(4x+2x)](x) = 12x$

H. $[2(g+h)](x) = 2[(4x+2x)](x) = 2 \cdot 6x = 12x$

Sect 1	Notes 4-4 Function Operations	Unit 4
Practice:		
$f(x) = x - 8$ $g(x) = 2x + 3$ $h(x) = 3x$ $j(x) = x + 5$ $k(x) = 12x$		
A. $(f+g)(x) =$ B. $(g-f)(x) =$ C. $[j(x)] =$ D. $(h \cdot g)(x) =$ E. $(h-k)(x) =$ F. $[g(x)] + 2 =$ G. $[2(g+h)](x) =$ H. $[2(g+h)](x) =$		
I. $(f+f)(x) =$ J. $\left(\frac{g}{g}\right)x =$		