

UNIT 5 DAY 01 OPERATIONS ON FUNCTIONS

Operations of Functions: Notation and Procedure			
Sum: $(f + g)(x) = f(x) + g(x)$	Difference: $(f - g)(x) = f(x) - g(x)$	Product: $(f \cdot g)(x) = f(x) \cdot g(x)$	Quotient: $\left(\frac{f}{g}\right)(x) = f(x) \div g(x)$

1-3: Perform the following operations for each problem.

<p>1. $f(x) = 8x - 3; g(x) = 4x + 5$</p> <p>a. $(f + g)(x) =$</p> <p>b. $(f - g)(x) =$</p> <p>c. $(f \cdot g)(x) =$</p> <p>d. $\left(\frac{f}{g}\right)(x) =$</p>	<p>2. $f(x) = x^2 + x - 6; g(x) = x - 2$</p> <p>a. $(f + g)(x) =$</p> <p>b. $(f - g)(x) =$</p> <p>c. $(f \cdot g)(x) =$</p> <p>d. $\left(\frac{f}{g}\right)(x) =$</p>	<p>3. $f(x) = 3x^2 - x + 5; g(x) = 2x - 3$</p> <p>a. $(f + g)(x) =$</p> <p>b. $(f - g)(x) =$</p> <p>c. $(f \cdot g)(x) =$</p> <p>d. $\left(\frac{f}{g}\right)(x) =$</p>
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Introduction: Who has the better discount?

Claire and Jadire decide to go out to Taco Bell for lunch. 😊 They each have a 50-cent coupon. In addition, if they show their PAHS student I.D. cards they will also get a 10% discount. Both of them ordered the #3 chalupa value meal for \$6.95. Claire's server rang up her order using the value meal coupon, and then the PA 10% discount. Jadire's server rang his up as a 10% discount, then the coupon. Who got the better deal?

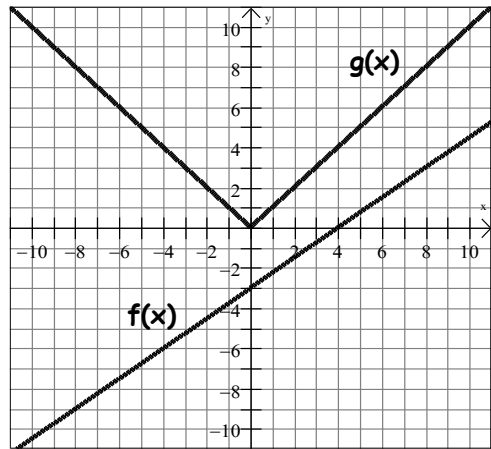
Composition of functions

- the process of using the _____ of one function as the _____ of another function.
The results where evaluating a value of one function is used to evaluate a value of a second function.
- Composition of f and g:** written in the form $(f \circ g)(x) = f(g(x))$

4-5: Given the graphed function, find each value algebraically and using the graph.

4.

$$f(x) = \frac{3}{4}x - 3 \quad \text{and} \quad g(x) = |x|$$



a. $f(g(-4))$

b. $g(f(-4))$

c. $f(g(2))$

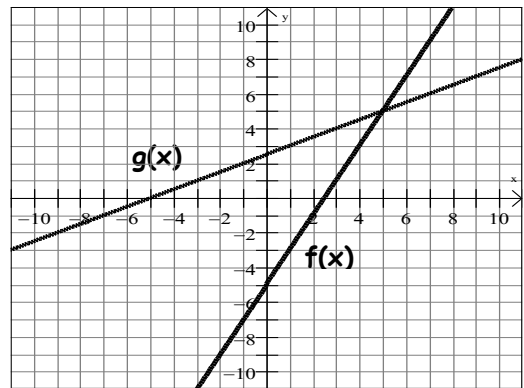
d. $g(f(2))$

e. $f(g(-2))$

f. $g(f(-2))$

5.

$$f(x) = 2x - 5 \quad \text{and} \quad g(x) = \frac{1}{2}(x + 5)$$



a. $f(g(-4))$

b. $g(f(-4))$

c. $f(g(3))$

d. $g(f(3))$

6-8: Find $(f \circ g)(x)$ and $(g \circ f)(x)$.

6. $f(x) = 2x + 7; g(x) = -5x - 1$

7. $f(x) = x^2 + 2x; g(x) = x - 9$

8. $f(x) = 3x - 2; g(x) = \frac{1}{3}x + \frac{2}{3}$