

Name:

Date:

Topic:

Class:

Main Ideas/Questions

Notes/Examples

## OPERATIONS with FUNCTIONS

You can add, subtract, multiply, and divide functions.

Example: If  $f(x) = 3x - 7$  and  $g(x) = 13 - 2x$ , find  $f(x) + g(x)$ :

This new function is denoted as

## ALL OPERATIONS

SUM

$$(f + g)(x) =$$

DIFFERENCE

$$(f - g)(x) =$$

PRODUCT

$$(f \cdot g)(x) =$$

\*QUOTIENT

$$\left(\frac{f}{g}\right)(x) =$$

**Directions:** Given  $f(x) = x^2 - 8x + 4$ ,  $g(x) = 4x - 3$ , and  $h(x) = x + 2$ , find each function.

Indicate any restrictions in the domain.

1.  $(f + g)(x)$

2.  $(f - h)(x)$

3.  $(h \cdot g)(x)$

4.  $\left(\frac{f}{h}\right)(x)$

5.  $\left(\frac{h}{g}\right)(x)$

6.  $(f \cdot g)(x)$

**Directions:** Given  $f(x) = 2x^2 - x - 12$  and  $g(x) = x + 7$ , find each function value.

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

8.  $(f - g)(8)$

9.  $(f \cdot g)(-1)$

10.  $\left(\frac{f}{g}\right)(5)$

**Directions:** Given  $f(x) = x^3 + 8$ ,  $g(x) = x - 1$ , and  $h(x) = 5x - 3$ , find each function.

11.  $(f \circ g)(x)$

12.  $(h \circ g)(x)$

13.  $(f \circ h)(x)$

14.  $(g \circ f)(x)$

**Directions:** Using the same functions above, find each function value.

15.  $(g \circ h)(2)$

16.  $(h \circ f)(-6)$