



**Math 1314**  
**College Algebra**

**LO-8**  
**Chapters 3.6**

## Skills to Master

- Understand and use the notation for adding, subtracting, multiplying, and dividing functions
- Use the algebra of functions to evaluate functions for particular values of the independent variable

# Algebra of Functions

Operations on functions:

Notation	Meaning
$(f + g)(x) =$	$f(x) + g(x)$
$(f - g)(x) =$	$f(x) - g(x)$
$(f \cdot g)(x) =$	$f(x)g(x)$
$\left(\frac{f}{g}\right)(x) =$	$\frac{f(x)}{g(x)}$

Example

Perform the indicated operations for the functions  $f(x) = 3x - 5$  and  $g(x) = -x + 2$

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

Example

Perform the indicated operations for the functions  $f(x) = 2x^2 + 3$  and  $g(x) = 2x + 5$

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

# Evaluating Combined Functions

## Examples

Find the value of  $(f + g)(3)$  when  $f(x) = x^2 + 1$  and  $g(x) = 2x + 1$

Find  $(f \cdot g)(-2)$  when  $f(x) = x^2 + 1$  and  $g(x) = 2x + 1$

Find  $(f - g)(5)$  when  $f(x) = 3x^2 + 4x - 5$  and  $g(x) = 4x^2 + x + 9$

Find  $\left(\frac{f}{g}\right)(x)$  when  $f(x) = -2x + 4$  and  $g(x) = 25x^2 - 4$