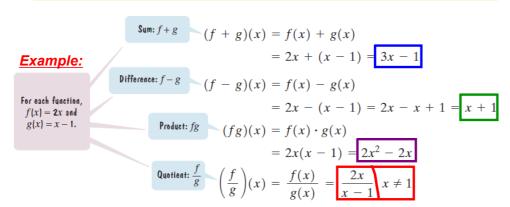
Topic 1.1 - Day 3: Operations w/ Functions

The Algebra of Functions: Sum, Difference, Product, and Quotient of Functions

Let f and g be two functions. The sum f+g, the difference f-g, the product fg, and the quotient $\frac{f}{g}$ are functions whose domains are the set of all real numbers common to the domains of f and g:

- 1. Sum: (f + g)(x) = f(x) + g(x)2. Difference: (f - g)(x) = f(x) - g(x)3. Product: $(fg)(x) = f(x) \cdot g(x)$
- 4. Quotient: $\left(\frac{f}{g}\right)(x) = \frac{f(x)}{g(x)}$, provided $g(x) \neq 0$.



Ex2.

Let f(x) = x + 3 and $g(x) = x^2 - 2x - 15$. Find each of the following functions and the domains:

The Composition of Functions

The **composition of the function** f **with** g is denoted by $f \circ g$ and is defined by the equation

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

Ex3.

