**Section 2.6—Combinations of Functions; Composite Functions**

**Finding a Function’s Domain**—If a function f does not model data or verbal conditions, its domain is the largest set of real numbers for which the value of f(x) is a real number. Exclude from a function’s domain real numbers that cause division by zero and real numbers that make a square root negative.

**Example**: Find the domain of each function.

1. 
2. 
3. 

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

Let f & g be two functions. The sum, difference, product and quotient are defined as follows:

* **Sum**: 
* **Difference**: 
* **Product**: 
* **Quotient**: ; given 

**Example**: Let f(x) = x – 5 and . Find the following.

1. (f + g)(x)
2. (f – g)(x)
3. (f∙g)(x)
4. 

**Composite Function**: the composition of the function f with g



The domain of the composite function  is the set of all x-values such that:

1. x is in the domain of g and
2. g(x) is in the domain of f

**Example**: Given f(x) = 5x + 6 and , find each of the composite functions:

1. 
2. 
3. 
4. 