Name_____ Algebra 2
6.6 Function Operations Notes

Before we talk about operations, we should define a function.

A function is a relationship between a set of inputs (x-value) and a set of outputs (f(x)-value). Anything with an f(x)= or g(x)= is a function.

For example,

We can define f(x) to be $f(x) = 2x + 5$. We can then choose any value of x (input), substitute that value into the expression, and figure out f(x) (output).

Examples:

If $f(x) = 2x + 5$, find the following

$f(2) =$

$f(-4) =$

$f(-2x + 3) =$

There are four function operations that we are going to look at.

1)

2)

3)

4)

On the next page, we will look at some examples.

Examples:

Let $f(x) = 4x + 7$ and $g(x) = \sqrt{x} + x$. What are f + g and f – g? What are their domains?

Let $f(x) = 2x^2 + 8$ and $g(x) = x - 3$. What are f + g and f – g? What are their domains?

Let $f(x) = x^2 - 9$ and $g(x) = x + 3$. What are $f \cdot g$ and $\frac{f}{g}$. What are their domains?

Let $f(x) = 3x^2 - 11x - 4$ and $g(x) = 3x + 1$. What are $f \cdot g$ and $\frac{f}{g}$. What are their domains?

Another function operation is called the composition of functions.

Definition:

Examples:

Let $f(x) = x - 5$ and $g(x) = x^2$. What is $(g \quad f)(-3)$?

Let $f(x) = x - 5$ and $g(x) = x^2$. What is $(f \quad g)(-3)$?