Chapter 1 – Introduction to Functions

Review

You need to know: (read your notes!!)

From Section 1.1 – Introduction to Functions

- The definition of a function and the difference between a function and just a relation (e.g. the Vertical Line Test).
- Know what the graph of a function is (it's a set of points, not a picture!).
- Domain and Range of functions (and plain old relations too).

From 1.2 – Function Notation

- Know Function Notation $\left(\text{i.e. } f(x)\right)$.
- How to find range values given domain values for any function (example 1.2.1).

From 1.3 – 1.4 – Parent Functions and Domain and Range

- Know the 5 basic parent functions, their basic shape, table of values, and their domains and ranges (See the chart on the first page of those notes).
- Know how to determine the domain and range of a function (relation) given the sketch of the graph.
- Know how to state domain and range in "Set Notation" (including how to deal with "restrictions" for domain and range).

From 1.6 – 1.8 (parts 1 and 2) – Transformations of Functions

- Know the three main types of transformations, and that those transformations can be applied both **horizontally (inside a parent function)** and **vertically (outside a parent function).**
- Know how to state all transformations of a given function (including stating the parent function).
- Know how to find "**image points**" for transformed functions (see Example 1.8.5 from Part 2).
- Know how to sketch parent and transformed functions.
- **Remember, horizontal transformations are always "opposite".**

Math 11U **Unit 1 Intro to Functions Practice Test** **Name:**_____

1. What is a function? (use a formal definition or use your own words)

2. For the following: state the domain, the range, and whether it is a function. If it is not, explain why it isn't.

a) $\{(2,4), (3,5), (4,6), (5,7), (8,9), (12,13)\}$

b) $\{(5,2), (8,1), (9,5), (3,7), (8,9), (1,0)\}$

3. Let $f(x) = 4x - 9$.

a) Evaluate $f(5)$

b) Evaluate $f(10) - f(9)$

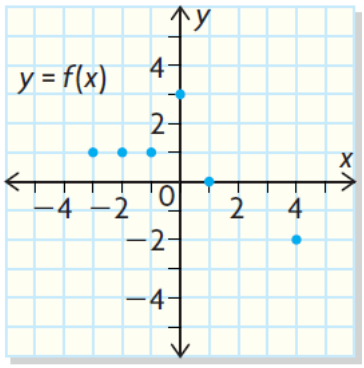
c) Find the *x* so that $f(x) = -5$

4. Use the graph to answer the following:

a) $f(4) =$

b) $f(x) = 0$

c) $f(x) = 1$



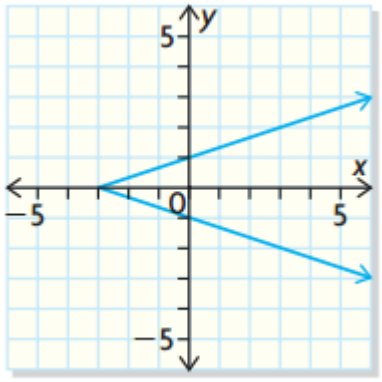
d) Is this graph a function?

5. Find domain and range of each:

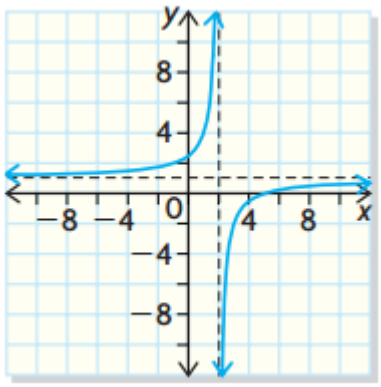
a) $f(x) = -3\sqrt{2x-8} + 5$

b) $f(x) = 2(x+3)^2 - 7$

c)



d)



6. State the transformations and create the table of values you would use to graph these functions:

a) $f(x) = 5\sqrt{-\frac{1}{2}x - 3} + 8$

b) $g(x) = -7|4(x-6)| - 3$

7. A square root function has the following transformations applied to it:

- Vertical stretch of 4
- Vertical Flip
- Vertical Shift of 8 up
- Horizontal Stretch of $\frac{1}{3}$
- Horizontal Shit of 2 left

Write out the function.

When studying, really know the parent functions and all their properties.