

Math 1, Fall 2003
Goals for Week 1: September 24-26, 2003

The Real Numbers: You should be able to give examples of natural numbers, integers, rational numbers, and real numbers, as well as integers which are not natural numbers, rational numbers which are not integers, and real numbers which are not rational numbers.

Functions: You have a conceptual image of function, domain, and range. You should have a picture in your mind of these three concepts working together.

Representing Functions: You should recognize four different ways to represent real valued function: verbally, algebraically, numerically, and graphically. You should know how to derive a numerical representation from an algebraic one, and a graphical representation from a numerical one.

The Vertical Line Test: Given a curve in the xy -plane, you should be able to apply the vertical line test to determine whether or not that curve is the graph of a function. You should be able to give a reason why the vertical line test works.

Constant Functions: You should know what a constant function is. You should be able to draw the graph of a constant function, and you should know what happens to the graph of the function $y = c$ as c increases or decreases.

Linear Functions: You should know what a linear function is. You should recognize the formula $y = mx + b$. You should be able to draw the graph of a linear function given a formula of the form above. You should be able to say what happens to the graph of the function $y = mx + b$ if m increases or decreases and if b increases or decreases. You should be able to give a description of what the graph of a linear function looks like if m is positive, negative, or zero.

Deriving Linear Functions: If you know the value of a linear function f at two values of x , then you should know how to find m and b . You should know a formula for slope. You should know that the slope of a line is constant no matter what two points are chosen for the formula. Given m and the value of a linear function at one point, you should be able to derive b .

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Lecture Notes for Week 1: Lectures 1 and Lecture 2

Homework for Week 1: Homework 1 and Homework 2