Intro To Limits

Made Up Stuff

- Mathematicians like making stuff up in order to help us go further
- Examples:
  - Trig Functions
  - Log
  - i

What Are Limits

- A limit is the idea of getting really close to something, but not quite all the way
- It helps us analyze things we can't analyze directly
- Examples:
  - Holes in functions
  - Long term behavior
  - Oscillating functions

Definition

- The limit of f(x) near some point b is defined as the number, L, such that when x get close (but not equal to) b, f(x) gets close to L
- Generally we say "f approaches L"
- Think of it like you are driving on a road, there my be a pothole you can't see [f(b)], but you expect the road to continue to L
- Keep in mind that the limit may not exist

One-Sided Limits

- Normal limits look at both sides near b
- Right-sided limits only care about the right side of b
- Left-sided limits only care about the left side of b
- Remember if a function is defined around b, then iff the limit from the right equals the limit from the left then these both equal the normal limit

Questions?

Homework due Tonight

- Homework 1 is due by the end of today
- LaTeX submissions can be submitted by Thursday
- Nicely typed and coherent homeworks may be given a bonus point
- Next Class: More Limits