## MATH:113, Recitations 304 and 305

February 6<sup>th</sup> Lesson Plan

Our goals for this class period are:

- (i) getting students more comfortable computing limits, especially with unfamiliar functions;
- (ii) learning "limit laws";
- (iii) plotting functions and taking intuitive, visual cues from them;
- (iv) emphasizing important theorems related to limits and continuity, like the intermediate value theorem and the squeeze theorem;
- (v) practicing algebra skills in the process.

We'll split the class time nearly in half. The first 20 minutes (or so) will be dedicated to a class-wide review activity, recapping what they covered in lecture, answering questions, and previewing what's coming up the following week. The second 30 minutes will be a round-robin activity, where each "corner" of the room will be dedicated to a specific topic: limit computation, continuity, and important limit theorems.

10 minutes	Some slides for review. <i>Without referencing the internet or their materials,</i> each stu- dent group will be asked to come up with a definition for the limit of a function at a point and a definition for continuity. After finishing, each group should explain their definitions to the group next to them to improve their definitions. nstructors will circulate, and should ask questions that guide students toward precise defini- tions; for those that finish early, ask them if they'd like to present to the rest of the class.
10 minutes	Additional slides for review: these will be the statements for the intermediate value theorem and squeeze theorems. Now, <i>without referencing the internet or their materials</i> , each student group should draw a clearly labeled <i>picture</i> that matches the definition of the theorem. Again, each Instructors will circulate, and should ask questions that guide students toward precise definitions; for those that finish early, ask them if they'd like to present for the rest of the class.
5 minutes	Recap and instructions for the next half of class.
Remaining	Split the room into three groups. Each instructor is assigned a "station," and will rotate to each group of tables. These activities are:
	1. <i>limit computation</i> , where the students are first asked to choose an find a limit from a set of given functions (which will require doing some algebra and recalling "limit laws"), then being given a (secretly incorrectly!) computed limit and asked to find the errors;
	2. <i>limit theory</i> , where we'll talk about the squeeze theorem and the intermediate value theorem;
	3. and <i>continuity</i> , where we'll walk through examples of continuous and discon- tinuous functions.