Math 319 Homework 9

1. Redo all questions on Midterm 2 for which you got less than 7/10. I have a note of how many questions this is, so you do not need to hand back your original exam. This work will be incorporated into your final grade in some way, but not as part of the exam grade.

   I have posted a copy of exam 2. I have written some comments on the problems below.

This is due at 5pm on Tuesday Nov 30.

2. Work on the project. During the next two lectures (Thursday Nov 18 and Tuesday Nov 23) I will be asking people to sign up for presentation times. People who volunteer to go early (specially on Nov 30) will get special consideration when I grade them.

   I will have extra office hours during the next few days to give you a chance to discuss things with me. You can also email me your questions. There should also be time on Tuesday Nov 23 for me to answer your questions.

Comments on Midterm 2.

   Typically people found questions 1,2,3 hard and questions 4 and 5 relatively easy.

1. Only a few of you could write out this proof well. Look up an argument in the book and try to write it in your own words.

2. Many of you found this hard (i.e. confusing?) but it really is an easy question. Remember to explain why points such as $3\frac{1}{2}$ or 5 are not cluster points, as well as explaining why 3 is.

3. It is easiest here to argue by contradiction. ie suppose that $L \notin [0, 2]$ and get a contradiction. The idea is very close to the proof that if $x_n \geq 0$ for all $n$ and $\lim x_n = x$ then $x \geq 0$.

4. Almost all of you got this one. Often I took off a point because, although you did the steps and got the right answer, you did not explain clearly what you are doing.

5. Again, quite a few of you did this question well. I was lenient about asking for proofs here, giving almost full marks to people who gave correct answers together with basically correct intuitive arguments (rather than a formal proof.) Note that the ratio test never works for sequences of this kind (ie where $x_n$ is a rational function of $n$.) Also you have to be careful with the comparison test when the terms are both positive and negative; it is better to use the squeeze theorem (or put in absolute values).

   The final exam will be very much like this one. So work on rewriting this should pay off.