Math 301 Midterm 1 Information

Donnay, Fall 2011

The midterm will be self-scheduled. The test will be on reserve in Collier Science Library starting Monday morning, Oct 3rd. The test must be completed by Thursday Oct 6th at midnight. You will have 3 hours for the timed portion of the test. When you are ready to take the test, pick it up at the library and then do the test in the library. When you have finished the test, hand it in to Professor Donnay. Put it under his door if he is not there. Sign the sheet outside his door to show you have handed in the test.

There will be an additional question on iteration and dynamical systems. You will need to use Excel to make a table of iterations and to graph the iterations. This part will be untimed.

All parts of the test are closed book, closed notes.

Topics for the Exam:

Iteration, limits of sequence (predictions based on evidence), fixed points, attracting/repelling fixed points (based on iteration of nearby points).

Countable, uncountable sets and associated ideas

Sequences and limits. Types of sequences (converge/diverge; monotone increasing/decreasing or oscillating, bounded or unbounded). Formal definition of limits (in terms of \( \varepsilon \) and \( N \)). Limit laws, growth rates.

You should know definitions. Statements of key theorems and how to apply the theorems. Simple examples that illustrate the theorems and show the various behaviors that can take place. Be able to prove the main theorems.