

Math 355 Final Exam review sheet of love!

Homer and Peter

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Hi everyone. Homer Simpson and Peter Griffin here to dish the dirt on the upcoming final exam. Your final exam will be Tuesday 6/10/08, from 4-5:50 in our classroom. We hope you enjoy these comments from the final few sections we're covering!

1. Section 3.3: Subsequences. This is a short section devoted to really just the definition and a few short facts about subsequences. The most telling and useful fact at this stage, of course, is that if a sequence converges, then every subsequence must converge to the same value (see Theorem 3.6). Its converse is widely used to show that a sequence doesn't converge by finding two subsequences which don't converge to the same thing.
2. Section 3.4: Monotone subsequences. This section features the monotone subsequence theorem, stating that a bounded monotone sequence converges. This is used subsequently in the proof of the Bolzano-Weierstrass theorem. A discussion of recursively defined sequences follows, along with the nested intervals theorem. Finally, we study the startling fact that EVERY sequence has a monotone subsequence!
3. Section 3.5: Bolzano-Weierstrass Theorems. Here we study the Bolzano-Weierstrass theorem, and some of its uses. The proof of this theorem is elegant and short using supporting results from the previous section, and Corey finds this proof very interesting.
4. Section 3.6: Cauchy sequences. We discuss Cauchy sequences and some of their properties: see all of the results listed in this section as they are all important. See problems 1, 2, and 6 for helpful practice problems.

5. Other relevant information about the final exam. The final will be roughly the size of two midterm exams and will be cumulative. The format will be the same as the midterm, and you may expect that there will be a question (or two) on definitions, and some amount of choice. Finally, Corey suggests that you study with a clock, as you'll have the same amount of time to do the final exam that you had to do the midterm, so it is possible that time will be an issue. Other than that, good luck, and ROCK ON!