Real Analysis I
Review for Second Exam

The second exam is on the material covered in class corresponding to sections 3.2, 3.3, 4.1, 4.2, 4.3, 4.4, 4.5 of the text, and to assignments 4, 5, and 6.

3.2. We covered the entire section.

3.3. We covered this entire section as well, though I gave a somewhat different proof of Lusin's theorem in class.

4.1, 4.2. We covered these sections in their entirety, following the presentation in the text pretty closely.

4.3. We covered everything in this section except Beppo Levi's Lemma, and Beppo Levi's Lemma is an easy result whose proof is worth reading anyway. One significant difference between the text and the lectures is that in class I stated and proved a slightly more general version of Fatou's Lemma than the one in the text. The version I proved is that contained in problem 27 on page 85. (I believe this is the version most people refer to as Fatou's Lemma.)

4.4. We covered everything in this section except Theorem 19, which you will not need to know for the exam.

4.5. We did Theorem 20 in class. We didn't do Theorem 21, but it's an easy consequence, writing out the proof would be a good exercise.

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The comments I made on the first review sheet about searching out other problems (either from this text or from other texts, or online) are still valid. The trick is to try to determine which of the problems you find are relevant to the topics we happen to be studying for this exam — but that's a valuable exercise in itself. You might take a look at some problems from Rudin's text I posted on the course web page. Just remember they aren't all relevant to this exam.