

Topology I, Newberger, Spring 2005
Final Exam Review Sheet

This exam will cover the sections covered on the previous exams, plus Section 19 (product topology only), 30, 31, 32 (up to page 202 only), 33, 34, 35.

- I. You will be asked to state the definitions of some of the following vocabulary, and know the statements of the following theorems. Not much partial credit will be given. Know the definitions very well.
 - (a) First countable topological space
 - (b) Second countable topological space
 - (c) Dense
 - (d) regular
 - (e) normal
 - (f) Urysohn's Lemma
 - (g) Urysohn's Metrization Theorem
 - (h) Tietze's Extension Theorem
- II. You will be asked to prove at least one of the following theorems from the text: 30.3, 31.1, 32.1 and 32.2.
- III. You will be asked to give proofs and counterexamples for statements of this form:
If $\mathcal{T} \subset \mathcal{T}'$ are two topologies on X , what does one of the two topologies has property A then the other has property A.
- IV. You will be asked to prove statements using each of the following vocabulary: closed, closure, compactness, connectedness, continuity.