

## Topology I, Newberger, Spring 2005

**Homework: Section 17.** Due Tuesday, February 24.

Follow the instructions carefully. Write your answer so that I do not have to look up the problems in the book in order to understand your responses. It is sufficient but not necessary for you to copy the problems onto your homework to achieve this.

- I. Read Section 17. Memorize the definitions of the words closed, closure, and limit point. Know Theorem 17.5 and understand the proof.
- II. (10 points)
  - A. Read the statement and proof of Theorem 17.2. This statement tells you what you need to do to prove that a set is closed in the subspace topology.
  - B. Do #2 on page 100. This is Theorem 17.3.
- III. (10 points) Choose one of the following problems:
  - i. Fundamental.
    - a. Let  $A$  and  $B$  be subsets of a set  $X$ . Express the set  $A - B$  as an intersection of two sets.
    - b. Do problem #4 on page 100.
  - ii. Challenging. Do #8(c) page 101.
- IV. (10 points) Do problem #16(a) on page 101.
- V. (10 points) Do problem #18 on page 101.