

## Topology I, Newberger, Spring 2005

**Homework: Sections 1-6.** Due Tuesday, February 1st.

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 the introduction to Chapter 1, and Sections 1 and 2.
- II. Read problem #2, page 21, and do the following. Do not submit your solution to all of problem #2 with your homework.
  - A. (10 points) Write a paragraph explaining the point that the author is making with this exercise. Include an explanation of what the word "preserves" means, and give examples of things that are and are not preserved, using parts of this problem.
  - B. (10 points)
    1. Do one of the following:
      - Fundamental: Write a solution to parts (c) and (g).
      - Challenging: Write a solution to #3 parts (c) and (g).
    2. Give an example of a function  $f$  and sets  $A_0$  and  $A_1$  such that  $f(A_0 \cap A_1) \neq f(A_0) \cap f(A_1)$ .
- III. Read Section 3.
- IV. A. Reread, starting at the bottom of page 6, "The inclusion relation..." ending at the bottom of page 7.
  - B. (10 points) Do problem #3 on page 28. Use complete sentences, and write your answer so that I do not have to look up the problem in the book in order to understand your response.
- V. Read Sections 4,5 and 6.