18.100C. Problem Set 2b

Due date: February 28 (Tuesday) in lecture or in my office before noon on due date (except for the writing assignment). Late homeworks will be accepted only with a medical note or for some other MIT approved reason. You may work with others, but the final write-up should be entirely your own and based on your own understanding.

Each problem is worth 10 points.

Problem 1: Rudin: ex. 12 page 44

Problem 2: Rudin: ex. 15, page 44.

Problem 3: Rudin: ex. 16, page 44.

Problem 4: Rudin: ex. 17, page 44.

Writing assignment: Due Wednesday, March 1. Write a short expose (1-1.5 pages) on compact sets (pages 36-40 in Rudin). The paper should be self-contained, and present some of the main definitions and properties of compact sets. Don't include technical proofs or details, use examples, and present your own understanding of the subject.

The following problems are recommended for additional practice. They should *not* be turned in with the homework and they will not count towards the homework score. Chapter 2: 13, 18, 19, 22, 29. (Also, exercises 22-28 define the notion of *separable metric space* and give some basic properties of such spaces.)