

Assignment 2

All of these are again from the exercises and problems for Chapter 1.

Exercises 22, 23 and 27.

Exercise 30. I found this one to be pretty difficult. My TeX solution runs to 17 lines. Maybe you will find an easier way. You should certainly be sure that you understand the hint in Exercise 29 before you try Exercise 30.

Exercise 32.

Exercise 35. In their hint to this one Stein and Shakarchi suggest building generalizations of the Cantor function associated with Cantor-like sets (Exercise 34). You do not need to do that. Consider $\phi(x) = x + \Phi(x)$ and its inverse, where Φ is the standard Cantor-Lebesgue function from Exercise 2.

Problem 3. This one has a detailed hint, but there is still work to do – as you should expect of “Problems” in this text. You may assume the result from undergraduate analysis that the intersection of a sequence of nested, nonempty, compact sets is nonempty.