

18.100A Fall 2012: Assignment 26 (Optional, not for handing in)

This assignment gives exercises from chapter 23, for those studying the optional material of the Friday and Monday lectures. Solutions to these exercises will be sent by e-mail Monday, Dec. 10.

Reading: (Fri.) 23.1-2

Countable and uncountable sets; sets in \mathbf{R} of measure 0; Cantor set.

The first four exercises ask you to prove various sets are countable. The next four deal with sets of measure zero.

1. Work 23.1/3abc (a) is elementary counting; for (b) use a theorem.
2. Work 23.1/4a
3. Work 23.1/9
4. Work 23.1/10ab
5. Do Question 23.2/2
6. Work 23.2/1
7. Work 23.2/2
8. Work 23.2/5ab

Reading: (Mon.) 23.3-4 (to middle p. 340)

Riemann integrability; basic properties of the Lebesgue integral.

9. Do Questions 23.3/1,2
10. Work 23.4/1abcd
11. Work 23.4/2abc