

**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.*

**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

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