Final takehome, MATH 515, Spring 09

**Problem 1) (50 pts)** Give the details of the proof of Theorem 4.2. in Lang’s book, page 137.

**Problem 2) (50 pts)** Give the details of the proof of Corollary 5.12 in Lang’s book, page 143.

**Problem 3) (50 pts)** Read IV, §7, page 153-157 in the book. What is the main idea of the proof of Hahn’s theorem 7.1. (4.76 in the notes) in a nutshell?

**Problem 4) (50 pts)** Explain the difference and relation between a $\mu$-measurable function and an integrable function.

**Problem 5) (100 pts.)** Do a problem of your choice from VI, §10, Exercises, which has not been a homework problem before.