MA677 Fall 2009
Homework Problem Set #4
November 16, 2009

Assignment 4. Finish reading chapter 6 of Stein-Shakarchi on abstract measure and integration theory through section 4. You might also look at Wheeden and Zygmund, chapters 10 and 11. These problems are due Friday, 4 December 2009.

(1) Exercise 5, page 312, on the polar coordinate formula.
(2) Exercise 8, page 313, on the uniqueness of Lebesgue measure on R^d as being a translation invariant Borel measure that is finite on compact sets.
(3) Exercise 9, page 314, on representation of the dual of $C([a, b])$. This is often called the Riesz-Markov Theorem.
(4) Exercise 10, page 314, on various relationships among measures.