HOMEWORK #1

Due Friday, October 3, 2008 (5:00 p.m.)

Reading: Review Chapters 1 and 2

Problems:

1. Let the sample space be $\Omega = [0, \infty)$. 
   
   (a) Let $F_1$ be the set of all intervals $\{[0, a)\}$. Determine if $F_1$ is a field.
   
   (b) Let $F_2$ be the set of all unions of a finite number of intervals $\{[a, b)\}$. Determine if $F_2$ is a $\sigma$-field.
   
   (c) Show that $F_2$ is the smallest field which contains $F_1$.
   
   (d) Show that the $\sigma$-field generated by $F_2$ contains all intervals (closed or open at either end) in $\Omega$.

2. Chapter 1: Problem 1.14

3. Chapter 1: Problem 1.20

4. Chapter 1: Problem 1.38

5. Chapter 2: Problem 2.8

6. Chapter 2: Problem 2.15