

Statistics 931: Probability Theory
Homework No. 1

INSTRUCTIONS. You should start reading Durrett's treatment of Renewal Theory (or the treatment in some other book that is at the same level. Since Rick shifts his notation depending on whether he takes the point-process point of view or the renewal theory point of view, his notation is slightly at odds with the notation I will use in class. It's all a matter of whether you say there is a renewal at time zero or not, but one needs to keep this straight. You will also want to review martingale theory; the problems will help with this.

PROBLEMS.

This is a short week, so just do Exercises 5.4.7, 5.4.8, and 5.4.9 in Durrett (page 253).

PHILOSOPHY.

Whenever you do a problem, be sure to consider Pólya's looking back technique. If at all possible try to discipline yourself to do this. It is the surest way that I know to gain honest mastery of the material — and to prepare yourself for bigger things.