

Study Guide for Exam 2

1. Be able to form and use recurrence relations to solve problems such as:
 - (a) Calculating Gambler Ruin probabilities
 - (b) Homework 7 # 3
 - (c) Homework 4 # 2
 - (d) Homework 8 # 3, 4, 5
2. Be able to find the renewal function, $m(t)$, for the uniform and Poisson inter-arrival distributions.
3. Be able to use stopping times and Wald's equation to compute expectations such as in
 - (a) Homework 6 # 1
 - (b) Homework 6 # 4
 - (c) To compute the expected time to the end of an unfair Gambler's ruin game.
 - (d) To prove that the expected time for a gambler in fair Gambler's ruin to go broke is infinite as long as he starts with at least \$1.
4. The Inspection Paradox: be able to recognize it when you see it. Watched intervals are longer than random intervals. Long intervals have a greater chance of covering a random point than short intervals.
5. For a concrete 2, 3, or 4 state Markov chain, be able to compute stationary distributions, absorption probabilities, time to absorption, etc... as appropriate.
6. Be able to use renewal theory to compute probabilities of values associated with queues such as:
 - (a) Homework 5 # 5
 - (b) Ross 3.32 (I think I worked most of this one in lecture.)