

Problem Set 5 for Math 29

Date Due: October 15, 2010

October 8, 2010

Section: Problems

4.11: 140

5.1: 2abc, 4 (no sketch), 8bc, 12

5.2: 14, 16, 20

Additional:

Suppose that three boys, A, B, and C (for lack of better names) are throwing a ball from one to another. Whenever A has the ball, he throws it to B with probability .2, and to C with probability .8. Whenever B has the ball, he throws to A with a probability of .6 and to C with a probability of .4. Whenever C has the ball, he is equally likely to throw it to either A or B.

- a. Consider this process to be a Markov Chain and construct the transition matrix.
- b. If each of the three boys is equally likely to have the ball at a certain time n , which boy is most likely to have the ball at time $n+2$?
- c. What is the equilibrium distribution of ball throwing?