

**Homework 7**

October 11, 2013

(Due: at the start of class on Thursday/Friday October 17/18)

1. For the discrete time Markov chain  $X$  in Problem 1a) of Assignment 6, compute the following:
  - (a)  $\Pr \{X_2 = 6 \mid X_0 = 5\}$ .
  - (b)  $\Pr \{X_2 = 5, X_3 = 4, X_5 = 6 \mid X_0 = 3\}$ .
  - (c)  $E(X_2 \mid X_0 = 6)$ .
  - (d) Assume the initial distribution is  $(0, 0, .5, .5)$ . Find  $P(X_2 = 6)$ .
  - (e) With the same initial distribution in 1d, find  $\Pr \{X_4 = 3, X_1 = 5 \mid X_2 = 6\}$
2. Consider problem #3 on Assignment 6. What is the distribution of  $X_1$ ?
3. Consider problem #4 on Assignment 6. What is the distribution of  $Y_1$ ?