

Math 303 Assignment 5: Due Friday, March 2 at start of class

I. Problems to be handed in:

1. Consider the simple random walk on the nonnegative integers, that is, $P_{0,0} = P_{0,1} = 1/2$ and $P_{i,i+1} = P_{i,i-1} = 1/2$ if $i \geq 1$. Modify this Markov chain by the Metropolis Hastings algorithm such that the stationary distribution of the new chain is $\text{Poisson}(\lambda)$.
2. Textbook Chapter 5 Exercise 6.
3. Textbook Chapter 5 Exercise 8.
4. Textbook Chapter 5 Exercise 14.
5. Textbook Chapter 5 Exercise 20.
6. Textbook Chapter 5 Exercise 26.

II. Recommended problems: These provide additional practice but are not to be handed in. Chapter 5: Exercises 3, 7, 10(a,b), 18(a,b,c), 19, 23.