

Math 339SP, Spring 2024 — Homework 10

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Due April 19 at 5:00 pm

Instructions. This problem set covers material from Week 12 of class, with a focus on Chapter 7 of the textbook.

Problem 1. Try the following exercises from Chapter 7.

1. Exercise 7.6 Note there is a small typo in some printings of the textbook. The entry Q_{44} of the generator should be -6 . Also note that the connection between long term proportion of time and limiting distribution in the case of continuous time Markov chains is analogous to that of discrete time Markov chains. That is, the long term proportion of time spent at the state is given by the limiting distribution value for that state.
2. Exercise 7.14 Note this problem is demonstrating the fact that the stationary distribution of the continuous time Markov chain is different from the stationary distribution of the embedded discrete time chain.
3. Exercise 7.25 Please read about the connection between the stationary distribution of the continuous time chain and the embedded discrete time chain on page 292 in advance of this problem.
4. Exercise 7.26