# 15.072
# Homework Assignment 5

**Given:** April 19, 2006 **Due:** April 26, 2006

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**Problem 1** *Consider a Markov process with a countable state space $i = 1, 2, \ldots, n, \ldots$ . Given the transition rates $q_{ij}$ of the process derive the expected time $1/\mu_i$ that the system stays in state $i$ and the probability $p_{ij}$ that the next state visited after state $i$ is state $j$.*

*Conversely, suppose you are given $\mu_i, p_{ij}$. Obtain the values of the rates $q_{ij}$.*

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**Problem 2** *Exercise 5.3 from Chapter 5.*

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**Problem 3** *Exercise 5.5 from Chapter 5.*

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**Problem 4** *Exercise 5.7 from Chapter 5.*

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