Discrete Markov chains and mixing times
Homework 2

Due 3 月 x 日（周 x）at the start of class

This is a draft from 3 月 6 日; the final version will include a due date and several more problems

1 Textbook problems

- Chapter 2: 2.8
- Chapter 3: 3.1, 3.2
- Chapter 4: 4.1, 4.2, 4.3, 4.4

2 Additional problems

1. Let G be a group and $\mu \in \mathcal{P}(G)$. Suppose that $S := \mathrm{supp}(\mu) := \{\, g \in G \,:\, \mu(g) > 0 \,\}$ is a subgroup of G.

   (a) Show that the essential communicating classes of the random walk on G with increment distribution μ are the cosets of S.

   (b) Describe the space of stationary measures for this Markov chain.