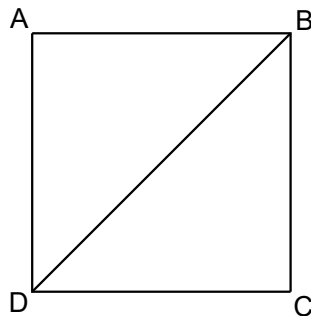


Markov Chains and Dynamical Systems, Fall 2025

Homework problem set #1 . Due on October 2, Thursday

Problems 2.-7. are from Durrett, R.: Essentials of Stochastic Processes (Section 1.12), available at [the author's webpage](#).

1. A drunk person is walking around randomly in a small town the map of which is displayed below. Each time he is at one of the corners, he picks randomly one of the available streets, except the street he has just arrived from. Do the corners visited by the drunk person form a Markov chain? If yes, determine the transition matrix. If no, come up with an alternative suggestion for a Markov chain that describes the process.



2. Problem 1.2
3. Problem 1.7
4. Problem 1.8 (c) (d)
5. Problem 1.25
6. Problem 1.26
7. Problem 1.33