

Homework 3

Do the problems on **Webwork** and turn the following problems in class on Feb. 9th.

Homework should be written neatly and clearly explained. If it requires more than one sheet, the sheets must be stapled. Include your name and id number in the top right corner of your homework.

Problem 1. Bus lines 1 through 3 all make stops at a bus stop. During a given time interval, each bus arrives once, but in a uniformly at random order. Alice needs to take either bus 1 or 2 to reach her destination and Bob needs to take bus 2 to reach his destination.

During this time interval, they both arrive to the bus stop together and take the first bus that will take them to their destination. Suppose they both left on the same bus. What is the probability they arrived before any of the buses did?

Problem 2. In a certain soccer tournament you play 5 games. In every match you get 3 points if you win, 1 point for a draw and 0 points if you lose. For each match the probability you win is 0.6, the probability you draw is 0.1 and the probability you lose is 0.3, independently of the results of all other matches. What is the probability you finish the tournament with at least 9 points?