Homework 3

Do the problems on webwork and turn the following problems in class on Sept. 24th.

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. The dorm in which you live houses 2% of the total student population. You know 50% of the students living in your dorm, but you know only 10% of the rest of the student population. A lot of students go to a party (including you) and you are seated at a table with 3 other people. The number of people is very large, so you can assume that the events of knowing different people at the party are independent.

1. What is the probability of you sitting with i (for $i = 0, 1, 2, 3$) people that you know?

2. What is the conditional probability that you know all the people at your table, given that i (for $i = 0, 1, 2, 3$) students from your dorm are sitting at your table?

3. The host tells you that you are seated at a table with 3 other people you know. What is the probability that all the other students at your table are from your dorm?

Problem 2. In a certain soccer tournament you play 4 games. In every match you get 4 points if you win, 1 point for a draw and 0 points if you lose. For each match the probability you win is 0.5, the probability you draw is 0.1 and the probability you lose is 0.4, independently of the results of all other matches. What is the probability you finish the tournament with 4 or less points?