Math 477, Homework 5

Name: _____

Net ID: _____

1. In a class of 10 students, what is the (exact) probability that some group of 3 students have the same birthday?

2. In the game "cobbler's purse," a player chooses a number in the set $S = \{2, 3, \ldots, 12\}$. and then rolls a pair of dice. The player wins if the sum of the results of the two dice is equal to the number chosen.
   (a) Assuming that the player chooses thier number from the set S, each with equal likelihood, what is the probability that they will win?

   (b) Assuming that the player chooses thier number from the set S, each with equal likelihood, what is expected number of games they will have to play in order to win?

3. Suppose that on average, a certain region is hit by 3 hurricanes per year. Assuming that the number of hurricanes in a year is a Poisson random variable, what is the probability that in a particular year there will be no more than 2 hurricanes?