1. Two dice are rolled. Find the probability that at least one of the dice is larger than 4. *(6 points)*

2. A couple plans to have 4 children. Find the probability that a majority of their children will be girls. Assume that the probability of having either a boy or a girl is $\frac{1}{2}$. *(7 points)*

3. An enterprising Finite Math instructor generously offers to hold a lottery in her class in which the winner, if there is one, will receive an automatic A together with a commerative MA 110 deck of cards. The lottery is structured so that students choose 3 numbers in the range of 1 to 15. Find the probability that a given student will win. Also, find the probability that a given student will choose two of the correct three numbers (and get *only* the commerative cards). *(7 points)*