Math 358-Week Three Homework
Due September 25 (Friday) in class.

1. Do Problems 1.4 1, 3, 4, 5

2. How many ways are there to pick 10 balls from a set of 12 green balls, 12 red balls, 2 blue balls, and 1 white ball?

3. How many arrangements of 6 0's 5 1's, and 4 2's are there in which

   (a) The first 0 precedes the first 1?

   (b) The first 0 precedes the first 1 which precedes the first 2?

4. Suppose that we have a set, $\mathcal{A}$, of subsets of $\{1, 2, \ldots, n\}$, such that, for $A_i, A_j \in \mathcal{A}, A_i \cap A_j \neq \emptyset$. Prove that $|\mathcal{A}| \leq 2^{n-1}$. Find an example where equality holds.