Stat 200A Homework 1

Note: the "Problems" and "Theoretical Exercises" are listed in separate sections at the end of the chapter.

The problem numbers are based on the **9th edition**. (A copy of these problems is available on the course webpage under the folder 'book problems'.)

1. Chapter 1, Problem 1
2. Chapter 1, Problem 5
3. Chapter 1, Problem 10
4. Chapter 1, Problem 13
5. Chapter 1, Problem 27
6. Chapter 1, Theoretical Exercise 11
7. Prove the identity $\sum_{k=0}^{n} \binom{n}{k} = 2^n$ without using the binomial theorem.
8. A set of n items contains k defective items, and m are sampled randomly for inspection. How should the value of m be chosen so that the probability that at least one defective item turns up is 0.90? Apply your answer to (a) $n = 1000$, $k = 10$, and (b) $n = 10,000$ and $k = 100$

   Hint: It's ok to derive an approximate answer by assuming k is small compared to n.
9. A group of 60 second graders is to be randomly assigned to two classes of 30 each. (The random assignment is ordered by the school district to ensure against any bias.) Five of the second graders, Marcelle, Sarah, Michelle, Katy, and Camerin, are close friends. What is the probability that they will all be in the same class? What is the probability that exactly four of them will be? What is the probability that Marcelle will be in one class and her friends in the other?

Reading Assignment. Please read Chapter 1 of the text.