1. Concept Check. Consider the following 2 experiments

   (a) There are approximately 230 million persons in the United States over the age of 22. Let's say that 50% of these persons hold a college degree. Imagine that you are interested in interviewing those with a college degree to ask them questions about their college experience. You have the resources to randomly contact 100 persons from this over 22 population.

   (b) You and a friend decide who does the dishes at your apartment by coin flip. Assume the coin is fair and that dishes have to be done 100 times this year.

   Question 1. Calculate the probability that you contact at least 40 college grads (you may find the `R` function `pbinom` useful). Calculate the probability that you have to do the dishes at least 40 times. Compare your two answers.

   Question 2. What distribution(s) did you use for the calculation in Question 1?

   Question 3. Mathematically, is there any difference between experiments (a) and (b)? Interpret the success probability in experiments (a) and (b). Is there any conceptual differences?

   Question 4. In one of the above experiments, I believe there is an underlying Hypergeometric distribution (not that you should necessarily use this for the computations above though...). Which experiment do you think I am referring to and why? Why does this distribution not apply to the other experiment in any way?

2. Exercise 5.10 in the text.

3. Exercise 5.46 in the text.

4. Exercise 5.56 in the text.

5. Exercise 5.52 in the text.

6. Exercise 5.66 in the text.