1. **Immigration reform priorities.** A Gallup Poll asked, "If you had to choose, what should be the main focus of the U.S. government in dealing with the issue of illegal immigration- developing a plan for halting the flow of illegal immigrants into the U.S. (or) developing a plan to deal with immigrants who are currently in the U.S. illegally?" Gallup's report said, "Results are based on telephone interviews conducted June 11–13, 2010, with a random sample of 1,014 adults, aged 18 and older, living in the continental U.S."

(a)What is the population for this sample survey? What is the sample?

2. **Sampling stuffed envelopes.** A large retailer prepares its customers' monthly credit card bills using an automatic machine that folds the bills, stuffs them into envelopes, and seals the envelopes for mailing. Are the envelopes completely sealed? Inspectors choose 40 envelopes from the 1000 stuffed each hour for visual inspection. What is the population for this sample survey? What is the sample?

3. **Sampling telephone area codes.** The United States currently has approximately 287 Numbering Plan Areas (NPAs) in service, corresponding to geographic regions. Each NPA is identified by a three-digit code, commonly called an area code. (More are created regularly.)16 You want to choose an SRS of 20 of these area codes for a study of available telephone numbers. Label the codes 001 to 287 and use Table B starting at line 135 and choose only the first 5 area codes in the sample.

4. **Sampling students.** The freshman class at The Ohio State University contains 6168 students. The Office of International Affairs is considering increasing its programming staff for its study abroad program and is going to sample the entering freshman class to see how many students are considering taking advantage of the opportunity to travel abroad while attending Ohio State.

(a) How would you label the names in order to select an SRS?

(b) Use Table B starting at line 135 to select an SRS of 8 Ohio State freshmen.

5. **Random digits.** Which of the following statements are true of a table of random digits, and which are false? Briefly explain your answers.

(a) There are exactly four 0s in each row of 40 digits.

(b) Each pair of digits has chance 1/100 of being 00.

(c) The digits 0000 can never appear as a group, because this pattern is not random.

6. **Online polls.** In an online poll, 97% of the respondents opposed issuing driver's licenses to illegal immigrants. National random samples taken at the same time showed about 70% of the respondents opposed to such licenses. Explain briefly to someone who knows no statistics why the random samples report public opinion more reliably than the online poll.

7. **Running red lights.** A sample described in another exercise produced a list of 5024 licensed drivers. The investigators then chose an SRS of 880 of these drivers to answer questions about their driving habits.

(a) How would you assign labels to the 5024 drivers? Use Table B, starting at line 104, to choose the first 5 drivers in the sample.

(b) One question asked was "Recalling the last ten traffic lights you drove through, how many of them were red when you entered the intersections?" Of the 880 respondents, 171 admitted that at least one light had been red. A practical problem with this survey is that people may not give truthful answers. What is the likely direction of the bias: do you think more or fewer than 171 of the 880 respondents really ran a red light? Why?

8. **Sampling at a party.** At a large block party there are 40 men and 30 women. You want to ask opinions about how to improve the next party. You choose at random 4 of the men and separately choose at random 3 of the women to interview.

(a) What is the probability that any of the 40 men is in your random sample of 4 men to be interviewed? What is the probability that any of the 30 women is in your random sample of 3 women to be interviewed?

(b) If you have done the calculations correctly in part (a), the probability of any person at the party being interviewed is the same. Why is your sample of 7 men and women not an SRS of people from the party?