4.1 Practice

Name_____

1. For each of the following situations involving sampling, identify—as precisely as possible— the population that the sample represents.

(a) An insurance company wants to monitor the quality of its procedures for handling loss claims from its auto insurance policyholders. Each month the company selects an SRS of all auto insurance claims filed that month to examine them for accuracy and promptness.

(b) A college admissions officer wants to know what the most important factors are that high school seniors consider when they choose where to apply to college. She conducts a telephone survey with a simple random sample of all applicants to her college.

2. In late 1995, a Gallup survey reported that about 46% Americans approved of sending troops to Bosnia. The poll did not mention that 20,000 U.S. troops were committed to go. A CBS News poll mentioned the 20,000 figure and got a different outcome—an approval rate of only 33%. Briefly explain why the mention of the number of troops would cause such a big difference in the poll results. Write the name of the kind of bias that is at work here.

3. A church group interested in promoting volunteerism in a community chooses an SRS of 200 community addresses and sends members to visit these addresses during weekday working hours to inquire about the residents' attitudes toward volunteer work. Sixty percent of all respondents say that they would be willing to donate at least an hour a week to some volunteer organization. Bias is present in this sample design. Identify the type of bias involved and state whether you think the sample percent obtained is higher or lower than the true population percent.

4. Each state conducts an annual study of seat belt use by drivers following guidelines set by the federal government. Seat belt use is observed at randomly chosen road locations at random times during daylight hours. The locations are based on counties within each state. In Hawaii, the counties are the islands that make up the state's territory, and the survey is conducted on the 4 most populated islands: Oahu, Maui, Hawaii (referred to as "The Big Island"), and Kauai. The sample sizes on the islands are proportional to the amount of road traffic.' so each location is equally likely to be selected.

(a) Is this a SRS of road locations in the state of Hawaii? Explain.

(b) Suppose there are 476 possible road locations on Kauai and we need to randomly select 22 of them to be in the sample. Beginning at line 120 in the random digits table below, choose the first 3 road locations for the seat belt survey sample. Explain your method clearly.

120	35476	55972	39421	65850	04266	35435	43742	11937
121	71487	09984	29077	14863	61683	47052	62224	51025
122	13873	81598	95052	90908	73592	75186	87136	95761