1. (a) True or False? Answer: 

(b) True or False? Answer: 

2. Identify the source of the bias. If possible, specify the direction of the bias (that is, whether the sample result will be systematically above or below the true population result).

(a) Type of Bias? (Explain in your attached homework.) Answer: 

Systematically above or below? (Explain in your attached homework.) Answer: 

(b) Type of Bias? (Explain in your attached homework.) Answer: 

(c) Type of Bias? (Explain in your attached homework.) Answer: 

Systematically above or below? (Explain in your attached homework.) Answer: 

(d) Period with higher rate of no answers? (Explain in your attached homework.) Answer: 

(e) Type of Bias? (Explain in your attached homework.) Answer: 

(f) Type of Bias? (Explain in your attached homework.) 
Systematically above or below? (Explain in your attached homework.) Answer: 

3. Yes or No? (Explain in your attached homework.) Answer: 

8.16 A, B, or C? Answer: 

8.24 A, B, or C? Answer: 

8.42

(a) Households omitted, and what types of people are likely to live in these households?

(b) Included households:
Homework #6 – Chapters 8 and 9
Due at the beginning of class on Monday, October 17th

1. Answer True or False. Explain your answer.

(a) (Hypothetical) The City of Modesto is considering adding 1/4 of a percent to the sales tax to increase the budget dedicated to parks and recreation. To estimate the level of support for the measure, the City creates a web page where readers are invited to take a survey. Two thousand people respond to the survey, of which 60% favor the measure. This is representative of the population as a whole.

(b) (Hypothetical) A ten year study on hypertension involving 3,000 subjects between the ages of 40 to 55, show that married individuals have lower risk of heart attack than single ones. The conclusion is that marriage is beneficial for your heart.

2. Bias is present in each of the following cases. Identify the source of the bias. If possible, specify the direction of the bias (that is, whether the sample result will be systematically above or below the true population result).

(a) The CNN evening commentator Lou Dobbs doesn’t like illegal immigration. One of his broadcasts in 2007 was largely devoted to attacking a proposal by the governor of New York state to offer driver’s licenses to illegal immigrants as a public safety measure. During the show, Mr. Dobbs invited his viewers to go to loudobbs.com to vote on the question “Would you be more or less likely to vote for a presidential candidate who supports giving drivers’ licenses to illegal aliens?” The results showed that 97% of the 7350 people who voted by the end of the broadcast said “Less likely.”

(b) You see a woman student standing in front of the student center, now and then stopping other students to ask them questions. She says that she is collecting student opinions for a class assignment.

(c) A flour company wants to know what fraction of Minneapolis households bake their own bread. An SRS of 500 residential addresses is drawn and interviewers are sent to these addresses. The interviewers are employed during regular working hours on weekdays and they interview only during those hours.

(d) A common form of nonresponse in telephone surveys is “ring-no-answer.” That is, a call is made to an active number but no one answers. The Italian National Statistical Institute looked at nonresponse to a government survey of households in Italy during the periods January 1 to Easter and July 1 to August 31. All calls were made between 7 and 10 p.m. but 21.4% gave “ring-no-answer” in the one
period versus 41.5% in the other period. Which period do you think had the higher rate of no answers? Why? Explain why a high rate of nonresponse makes sample results less reliable.

(e) A sample of households in a community is selected at random from the telephone directory. In this community, 4% of households have no telephone, 10% have only cell phones, and another 25% have unlisted telephone numbers.

(f) A study in El Paso, Texas, looked at seat belt use by drivers. Drivers were observed at randomly chosen convenience stores. After they left their cars, they were invited to answer questions that included questions about seat belt use. In all, 75% said they always used seat belts, yet only 61.5% were wearing seat belts when they pulled into the store parking lots.

3. In one study, the Educational Testing Service needed a representative sample of college students. To draw the sample, they first divided up the population of all colleges and universities into relatively homogeneous groups. (One group consisted of all public universities with 25,000 or more students; another group consisted of all private four-year colleges with 1,000 or fewer students; and so on.) Then they used their judgment to choose one representative school from each group. That created a sample of schools. Each school in the sample was then asked to pick a sample of students. Was this a good way to get a representative sample of students? Answer yes or no, and explain briefly.

4. **Problems from the text: 8.16, 8.24, 8.25, 8.42, 8.43**