1. Which of these is realistic? Explain why each scenario is or is not realistic. Be clear and be specific.

(a) Time in Bed: How much do Americans sleep each night? Based on a random sample of 1120 Americans 15 years of age or older, the mean amount of sleep per night is 8.17 hours according to the American Time Use Survey conducted by the Bureau of Labor Statistics. Assuming the population standard deviation for the amount of sleep per night is 1.2 hours, construct a 95% confidence interval for the mean amount of sleep per night for Americans 15 years of age or older.

(b) How Much TV Do Teenagers Watch? A Gallup poll conducted January 17 – February 6, 2005, asked 1028 teenagers 13 years of age to 17 years of age , "Typically, how many hours per week do you spend watching TV?" The teenagers who participated in the survey watched, on average, 13.0 hours of television per week with a standard deviation of 2.3 hours per week. Construct a 95% confidence interval for the average number of hours that teenagers watch TV each week.

2. What is the difference between the two scenarios given below? Be clear and be specific.

(a) How Much TV Do Teenagers Watch? A Gallup poll conducted January 17 – February 6, 2005, asked 1028 teenagers 13 years of age to 17 years of age , "Typically, how many hours per week do you spend watching TV?" The teenagers who participated in the survey watched, on average, 13.0 hours of television per week with a standard deviation of 2.3 hours per week. Construct a 95% confidence interval for the average number of hours that teenagers watch TV each week.

(b) In a poll conducted March 17 – 21, 2005, by the Pew Research Center for the People and the Press, a simple random sample of 1505 American adults was asked whether they were in favor of tighter enforcement of government rules on TV content during hours when children are most likely to be watching. Of the 1505 adults, 1129 responded that they were in favor of tighter enforcement of TV content rules. Determine a 95% confidence interval for the proportion of American adults who are in favor of tighter enforcement of government rules on TV content during hours when children are most likely to be watching.

3. How Much TV Do Teenagers Watch? A Gallup poll conducted January 17 – February 6, 2005, asked 1028 teenagers 13 years of age to 17 years of age , "Typically, how many hours per week do you spend watching TV?" The teenagers who participated in the survey watched, on average, 13.0 hours of television per week with a standard deviation of 2.3 hours per week.

(a) Construct a 95% confidence interval for the average number of hours that teenagers watch TV each week.

(b) Construct a 99% confidence interval for the average number of hours that teenagers watch TV each week.

4. In a poll conducted March 17 – 21, 2005, by the Pew Research Center for the People and the Press, a simple random sample of 1505 American adults was asked whether they were in favor of tighter enforcement of government rules on TV content during hours when children are most likely to be watching. Of the 1505 adults, 1129 responded that they were in favor of tighter enforcement of TV content rules.

(a) Determine a 95% confidence interval for the proportion of American adults who are in favor of tighter enforcement of government rules on TV content during hours when children are most likely to be watching.

(b) Determine a 96% confidence interval for the proportion of American adults who are in favor of tighter enforcement of government rules on TV content during hours when children are most likely to be watching.

5. A sociologist wants to estimate the percentage of the U.S. population living in poverty. What size sample should be obtained if (s)he wants to estimate within 2 percentage points with 99% confidence if

(a) (s)he uses the 2003 estimate of 12.7% obtained from the American Community survey?

(b) (s)he does not use any prior estimates?

6. The drug Lipitor is meant to lower cholesterol levels. In a clinical trial of 863 patients who received 10-mg doses of Lipitor daily, 47 reported a headache as a side effect. Construct the 90% confidence Interval for the proportion of Lipitor users who will report a headache as a side effect.