b. In constructing a confidence interval estimate of μ, you have 50 sample values and they appear to be from a population with a skewed distribution. The population standard deviation is known to be 18.2 cm.

c. In constructing a confidence interval estimate of σ, you have 50 sample values and they appear to be from a population with a skewed distribution.

d. In constructing a confidence interval estimate of σ, you have 50 sample values and they appear to be from a population with a normal distribution.

e. In constructing a confidence interval estimate of p, you have 850 survey responses and 10% of them answered "yes" to the first question.

5. Sample Size You have been hired by a college foundation to conduct a survey of graduates.

a. If you want to estimate the percentage of graduates who have made a donation to the college after graduation, how many graduates must you survey if you want 98% confidence that your percentage has a margin of error of five percentage points?

b. If you want to estimate the mean amount of all charitable contributions made by graduates, how many graduates must you survey if you want 98% confidence that your sample mean is in error by no more than \$50? (Based on results from a pilot study, assume that the standard deviation of donations by graduates is \$337.)

c. If you plan to obtain the estimates described in parts (a) and (b) with a single survey having several questions, how many graduates must be surveyed?

6. Alcohol Consumption In a Gallup poll, 1011 adults were asked if they consume alcoholic beverages, and 64% of them said that they did. Construct a 90% confidence interval estimate of the proportion of all adults who consume alcoholic beverages. Can we safely conclude that the majority of adults consume alcoholic beverages?

7. Wristwatch Accuracy Students of the author collected data measuring the accuracy of wristwatches. The times (sec) below show the discrepancy between the real time and the time indicated on the wristwatch. Negative values correspond to watches that are running ahead of the actual time. The data satisfy a loose requirement of appearing to come from a normally distributed population. Construct a 95% confidence interval estimate of the mean discrepancy for the population of wristwatches.

$$-85 \quad 325 \quad 20 \quad 305 \quad -93 \quad 15 \quad 282 \quad 27 \quad 555 \quad 570 \quad -241 \quad 36$$

8. White Blood Cell Counts Data Set 1 in Appendix B lists the white blood cell counts (1000 cells/μL) of 40 randomly selected women. The mean of those 40 values is 7.15 and the standard deviation is 2.28. Construct a 90% confidence interval estimate of the mean white blood cell count for the population of women. Does the confidence interval also serve as an estimate of the mean white blood cell count of men?

9. Car Crash Tests Data Set 13 in Appendix B includes crash test measurements for small cars. The seven chest deceleration measurements have a mean of 42.7 g and a standard deviation of 5.6 g, where g is a force of gravity. Use the sample data to construct a 95% confidence interval estimate of the mean chest deceleration measurement for the population of all small cars. (Assume that the sample is a simple random sample and the measurements satisfy the loose requirement of being from a normally distributed population.) Write a brief statement that interprets the confidence interval.

10. Car Crash Tests Refer to the sample data described in Exercise 9 and construct a 95% confidence interval estimate of the population standard deviation.