1. AARP reported on a study conducted to learn how long it takes individuals to prepare their federal income tax return (AARP Bulletin, April 2008). The data contained in the file named Tax Return are consistent with the study results. These data provide the time in hours required for 40 individuals to complete their federal income tax returns. Using past years' data, the population standard deviation can be assumed known with σ _ 9 hours. What is the 95% confidence interval estimate of the mean time it takes an individual to complete a federal income tax return?
   Use: TaxReturn.xlsx

2. Nielsen Media Research conducted a study of household television viewing times during the 8 p.m. to 11 p.m. time period. The data contained in the file named Nielsen are consistent with the findings reported (The World Almanac, 2003). Based upon past studies the population standard deviation is assumed known with σ _ 3.5 hours. Develop a 95% confidence interval estimate of the mean television viewing time per week during the 8 p.m. to 11 p.m. time period.
   Use: Nielsen.xlsx

3. The Wall Street Journal reported that automobile crashes cost the United States $162 billion annually (TheWall Street Journal, March 5, 2008). The average cost per person for crashes in the Tampa, Florida, area was reported to be $1599. Suppose this average cost was based on a sample of 50 persons who had been involved in car crashes and that the population standard deviation is σ = $600. What is the margin of error for a 95% confidence interval? What would you recommend if the study required a margin of error of $150 or less?

4. The National Quality Research Centre at the University of Michigan provides a quarterly measure of consumer opinions about products and services (The Wall Street Journal, February 18, 2003). A survey of 10 restaurants in the Fast Food/Pizza group showed a sample mean customer satisfaction index of 71. Past data indicate that the population standard deviation of the index has been relatively stable with σ = 5.
   a. What assumption should the researcher be willing to make if a margin of error is desired?
   b. Using 95% confidence, what is the margin of error?
   c. What is the margin of error if 99% confidence is desired?

5. **Playbill magazine reported that the mean annual household income of its readers is $119,155 (Playbill, January 2006). Assume this estimate of the mean annual household income is based on a sample of 80 households, and based on past studies, the population standard deviation is known to be σ = $30,000**
   a. Develop a 90% confidence interval estimate of the population mean.
   b. Develop a 95% confidence interval estimate of the population mean.
   c. Develop a 99% confidence interval estimate of the population mean.

6. A sample survey of 54 discount brokers showed that the mean price charged for a trade of 100 shares at $50 per share was $33.77 (AAII Journal, February 2006). The survey is conducted annually. With the historical data available, assume a known population standard deviation of $15.
   a. Using the sample data, what is the margin of error associated with a 95% confidence interval?
   b. Develop a 95% confidence interval for the mean price charged by discount brokers for a trade of 100 shares at $50 per share.

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7. Sales personnel for Skilling's Distributors submit weekly reports listing the customer contacts made during the week. A sample of 65 weekly reports showed a sample mean of 19.5 customer contacts per week. The sample standard deviation was 5.2. Provide 90% and 95% confidence intervals for the population mean number of weekly customer contacts for the sales personnel.

8. The mean number of hours of flying time for pilots at Continental Airlines is 49 hours per month (The Wall Street Journal, February 25, 2003). Assume that this mean was based on actual flying times for a sample of 100 Continental pilots and that the sample standard deviation was 8.5 hours.
   a. At 95% confidence, what is the margin of error?
   b. What is the 95% confidence interval estimate of the population mean flying time for the pilots?

   c. The mean number of hours of flying time for pilots at United Airlines is 36 hours per month. Use your results from part (b) to discuss differences between the flying times for the pilots at the two airlines.

9. The International Air Transport Association surveys business travelers to develop quality ratings for transatlantic gateway airports. The maximum possible rating is 10. Suppose a simple random sample of 50 business travelers is selected and each traveler is asked to provide a rating for the Miami International Airport. The ratings obtained from the sample of 50 business travelers follow.
   Develop a 95% confidence interval estimate of the population mean rating for Miami.
   Use: Miami.xlsx

10. Older people often have a hard time finding work. AARP reported on the number of weeks it takes a worker aged 55 plus to find a job. The data on number of weeks spent searching for a job contained in the file JobSearch are consistent with the AARP findings (AARP Bulletin, April 2008).
    a. Provide a point estimate of the population mean number of weeks it takes a worker aged 55 plus to find a job.
    b. At 95% confidence, what is the margin of error?
    c. What is the 95% confidence interval estimate of the mean?
    d. Discuss the degree of skewness found in the sample data. What suggestion would you make for a repeat of this study?

    Use: JobSearch.xlsx

11. The average cost per night of a hotel room in New York City is $273 (SmartMoney, March 2009).Assume this estimate is based on a sample of 45 hotels and that the sample standard deviation is $65.
    a. With 95% confidence, what is the margin of error?
    b. What is the 95% confidence interval estimate of the population mean?
    c. Two years ago the average cost of a hotel room in New York City was $229. Discuss the change in cost over the two-year period.

12. Is your favorite TV program often interrupted by advertising? CNBC presented statistics on the average number of programming minutes in a half-hour sitcom (CNBC, February 23, 2006). The following data (in minutes) are representative of their findings.
    Assume the population is approximately normal. Provide a point estimate and a 95% confidence interval for the mean number of programming minutes during a half-hour television sitcom.

    Use: Program.xlsx