

## Additional Exercises

1. In a study, seat belt users were found to have 20% fewer fatalities than those who do not wear seat belts. Do these results prove that seat belts reduce the chances of a fatality?
2. States having an abundance of coastline have an obvious advantage over landlocked states, or states with little coastline, in that their economies may profit from an extensive fishing industry, tourism, shipping or other water related activities. Alaska, the leader by far in miles of coastline, has a total of 6640 miles, of which 5580 miles border the Pacific Ocean and 1060 miles border the Arctic. Florida, the leader in the contiguous United States, has a total of 1350 miles with 580 miles on the Atlantic Ocean and 770 miles on the Gulf of Mexico. Of all states with some coastline, New Hampshire, with 13 miles of coastline, is in last place.
  - a. Identify the population.
  - b. What characteristic is being measured?
3. A young actuary (statistician usually working in the insurance industry) has been asked to summarize the number of automobile accident claims by region for his company. He randomly selects 50 automobile accident claims which his company has settled in the last year and counts the number of accidents in each region: North, South, East and West. He summarizes the counts by region in a chart and gives the results to his supervisor.
  - a. Identify the population.
  - b. What characteristic of the population is being measured?
  - c. Identify the sample.
  - d. Is the purpose of the data collection to perform descriptive or inferential statistics?
4. In a study in *Psychological Reports*, a sample of 547 nonsmokers was selected from a large Midwestern university. The sample contained 330 women and 217 men. These students were asked to complete a questionnaire concerning students who smoked. Seventy-six percent of those surveyed strongly agreed with the statement, *I am less likely to want a smoker for a roommate*. Sixty-three percent of those surveyed strongly agreed with the statement, *I am less likely to want a smoker for a date*. Sixty-seven percent of those surveyed strongly agreed with the statement, *I am less likely to want a smoker for a husband or wife*.
  - a. Identify the population.
  - b. What characteristics of the population are being measured?
  - c. Identify the sample.
  - d. Give one statistical inference that may be made from the data.
  - e. Why is this called an inference?