



- 5 A quality-control specialist wants to use the mean of a random sample of size 36 to determine the average fat content of a large shipment of quarter-pound hamburgers. The value of the population standard deviation is not known, but the specialist maintains that the value of the population standard deviation could not possibly be larger than 0.25 ounce. What can he assert with 0.99% probability about the maximum size of his error?
- 6 A health care professional wishes to estimate the birth weights of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 2 ounces of the sample mean? The standard deviation of the birth weights is known to be 8 ounces.
- 7 Researchers studied crashes of general aviation airplanes and found those pilots died 525 out of 8411 crash landings. Construct a 98% confidence interval for the percentage of pilot deaths in all general aviation crashes.

- 8 Suppose a sociologist wants to determine the current percentage of U.S. households using e-mail. How many households must be surveyed in order to be 95% confident that the sample percentage is in error by no more than four-percentage points (0.04)? Use the fact that in 1997, 17% of the U.S. households used mail.
- 9 Sixteen randomly selected automobiles were stopped, and the tread depth of the right front tire was measured. The mean was 0.32 inch, and the standard deviation was 0.08 inch. Find a 95% confidence interval for the mean depth.
- 10 A random sample of 18 Danish pastries produced by a major bakery products manufacturer has a mean of 190 milligrams of sodium per pastry, with a standard deviation of 10 milligrams per pastry. If 190 milligrams is used as an estimate of the actual mean of the population of Danish pastries produced by this manufacturer, what can we assert about the maximum error with 90% confidence?

- 11 In a sample survey, 230 of 1000 persons interviewed in a large city said that they shop in the downtown area at least once a week. What can we say with 99% confidence about the maximum error if we use the sample proportion to estimate the true proportion?
- 12 Suppose that we want to estimate what proportion of the adult population of the US has high blood pressure, and we want to be 98% sure that the error of our estimate will not exceed 0.03. How large a sample will we need if we have no idea what the true proportion might be?