

- c) Construct a 93% confidence interval for the population average weight of the candies.
- d) Construct a 96% confidence interval for the population average weight of the candies.
- e) Give an interpretation of what the interval in part (d) means.

#2.) A pharmaceutical company makes tranquilizers. It is assumed that the distribution for the length of time they last is approximately normal. Researchers in a hospital used the drug on a random sample of 10 patients. The effective period of the tranquilizer for each patient (in hours) was as follows: 2.7; 2.8; 3.0; 2.3; 2.3; 2.2; 2.8; 2.1; 2.2, and 2.4.

NOTE: If you are using a Student's t-distribution, you may assume that the underlying population is normally distributed.

- a) Construct a 95% confidence interval for the population average length of effectiveness for the tranquilizers.

- b) What does it mean to be "95% confident" in this problem?

#3.) Insurance companies are interested in knowing the population percent of drivers who always buckle up before riding in a car. When designing a study to determine this population proportion, what is the minimum number of drivers you would need to survey to be 95% confident that the population proportion is estimated to within 0.02? (Round your answer up to the nearest whole number.)

#4.) Stanford University conducted a study of whether running is healthy for men and women over age 50. During the first eight years of the study, 1.5% of the 451 members of the 50-Plus Fitness Association died. We are interested in the proportion of people over 50 who ran and died in the same eight-year period.

- a) Which distribution should you use for this problem? (Round your answers to 4 decimal places.)

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- b) Construct a 99% confidence interval for the population proportion of people over 50 who ran and died in the same eight-year period.

#5.) A quality control specialist for a restaurant chain takes a random sample of size 15 to check the amount of soda served in the 16 oz. serving size. The sample average is 13.40 with a sample standard deviation of 1.53. Assume the underlying population is normally distributed.

Find the 95% confidence interval for the true population mean for the amount of soda served. (Round your answers to two decimal places.)

#6) Suppose we want to do a survey to determine how long children use training wheels on their bikes. It is known that the standard deviation is 3 months. We want to be 99% confident that the population mean is estimated to within 1 month. How many children should we survey to accomplish this?