***For single population mean***

1. Use the following information to construct the confidence intervals specified to
2. 95% confidence for , σ = 3, and n = 49
3. 90% confidence for σ = 1.974 and n = 36
4. 80% confidence for , σ = 12.9, N = 500 and n = 54
5. 98% confidence for , σ = 25, and n = 81
6. A candy company fills a 20-ounce package of Halloween candy with individually wrapped pieces of candy. The number of pieces of candy per package varies because the package is sold by weight. The company wants to estimate the number of pieces per package. Inspectors randomly sample 120 packages of this candy and count the number of pieces in each package. They find that the sample mean number of pieces estimate is 18.72. Assuming a population standard deviation of 0.8735, what is the point estimate of the number of pieces per package? Construct a 99% confidence interval to estimate the mean number of pieces per package for the population.
7. A community health association is interested in estimating the average number of maternity days women stay in the local hospital. A random sample is taken of 36 women who had babies in the hospital during the past year. The following numbers of maternity days each woman was in the hospital are rounded to the nearest day.

3 4 3 2 5 3 1 4 3 4 2 3 5 3 2 4 3 2 4 1 6 3 4 3 3 3 5 2 3 2 3 5 4 3 5 4

Use these data and a population standard deviation of 1.17 to construct a 98% confidence interval to estimate the average maternity stay in the hospital for all women who have babies in this hospital.

1. A random sample of 15 items is taken, producing a sample mean of 2.364 with a sample variance of 0.81. Assume x is normally distributed and construct a 90% confidence interval for the population mean.
2. The marketing director of a large department store wants to estimate the average number of customers who enter the store every five minutes. She randomly selects five-minute intervals and counts the number of arrivals at the store. She obtains the figures 68, 42, 51, 57, 56, 80, 45, 39, 36, and 79. The analyst assumes the number of arrivals is normally distributed. Using these data, the analyst computes a 95% confidence interval to estimate the mean value for all five-minute intervals. What interval values does she get?

***For single population proportion***

1. Use the information about each of the following samples to compute the confidence interval for population proportion
2. n = 50, Ps = 0.55, compute a 95% confidence interval
3. n = 400, Ps = 0.85, compute a 99% confidence interval
4. n = 116, x = 57, compute a 90% confidence interval
5. n = 105, Ps = 0.33, compute a 88% confidence interval
6. According to the Stern Marketing Group 9 out of 10 professional women say that financial planning is more important today than it was five years ago. Where do these women go for help in financial planning? Forty-seven percent use a financial advisor (broker, tax consultant, financial planner). Twenty-eight percent use written sources such as magazines, books, and newspapers. Suppose these figures were obtained by taking a sample of 660 professional women who said that financial planning is more important today than it was five years ago.
7. Construct a 95% confidence interval for the proportion of professional women who use a financial advisor. Use the percentage given in this problem as the point estimate.
8. Construct a 95% confidence interval for the proportion of professional women who use written sources. Use the percentage given in this problem as the point estimate.
9. Suppose a survey of 275 executives is taken in an effort to determine what qualities are most important for an effective CEO to possess. The survey participants are offered several qualities as options, one of which is “communication”. One hundred twenty-one of the surveyed respondents select “communication” as the most important quality for an effective CEO. Use these data to construct a 98% confidence interval to estimate the population proportion of executives who believe that “communication” is the most important quality of an effective CEO.
10. The highway department wants to estimate the proportion of vehicles on Interstate 25 between the hours of midnight and 5:00 A.M. that are 18-wheel tractor trailers. The estimate will be used to determine highway repair and construction consideration and in highway patrol planning. Suppose researchers for the highway department counted vehicles at different locations on the interstate for several nights during this time period. Of the 3,500 vehicles counted, 947 were 18-wheelers.
11. Determine the point estimate for the proportion of vehicles travelling on interstate 25 during this time period that are 18-wheelers.
12. Construct a 99% confidence interval for the proportion of vehicles on interstate 25 during this time period that are 18-wheelers.

***Sample size determination***

1. Determine the sample size necessary using the following information
2. σ = 36 and E = 5 at 95% confidence
3. values ranges from 80 to 500, error is to be within 10, and the confidence level is90%
4. E= 0.01, p is approximately 0.42, and confidence level is 95%
5. E is no more than 0.02, p is unknown, and confidence level is 99%
6. A bank officer wants to determine the amount of the average total monthly deposits per customers at the bank. He believes an estimate of this average amount using a confidence interval is sufficient. How large a sample should he take to be within $200 of the actual average with 99% confidence? He assumes the standard deviation of total monthly deposits for all customers is about $1,000.
7. Suppose you have been following a particular airline stock for many years. You are interested in determining the average daily price of this stock in a 10-year period and you have access to the stock reports for these years. However, you do not want to average all the daily prices over 10 years because there are several thousand data points, you decide to take a random sample of the daily prices and estimate the average. You want to be 90% confident of your results, you want the estimate to be within $3.00 of the true average, and you believe the standard deviation of the price of this stock is about $10.50 over this period of time. How large a sample should you take?
8. Suppose a production facility purchases a particular component part in large lots from a supplier. The production manager wants to estimate the proportion of defective parts received from this supplier. She believes the proportions of defective parts is no more than 0.2 and want to be within 0.02 of the true proportion of defective parts with a 90% level of confidence. How large a sample should she take?