

## Lab Assignment 8.2, 8.3

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Self-Check 8.2, 8.3

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Row: \_\_\_\_\_

### Lab Assignment 8.2, 8.3

1. Suppose that a committee is studying whether or not there is waste of time in our judicial system. It is interested in the mean amount of time individuals waste at the courthouse waiting to be called for jury duty. The committee randomly surveyed 81 people who recently served as jurors. The sample mean wait time was eight hours with a sample standard deviation of four hours. Construct a 95% confidence interval for the population mean time wasted. Explain in a complete sentence what the confidence interval 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 nine 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; and 2.4. Construct a 95% confidence interval for the population mean length of time. Explain in a complete sentence what the confidence interval means.
- 1
3. Insurance companies are interested in knowing the population percent of drivers who always buckle up before riding in a car. They randomly surveyed 400 drivers and found that 320 claimed they always buckle up. Construct a 95% confidence interval for the population proportion who claim they always buckle up. Explain in a complete sentence what the confidence interval means.
  4. On May 23, 2013, Gallup reported that 76% of U.S. workers believe that they will continue working past retirement age. The confidence level for this study was reported at 95% with a  $\pm 3\%$  margin of error. Determine the sample size. Write an interpretation.
- 2
5. You plan to conduct a survey on your college campus to learn about the political awareness of students. You want to estimate the true proportion of college students on your campus who voted in the 2012 presidential election with 95% confidence and a margin of error no greater than five percent. How many students must you interview? Write an interpretation of the sample size.
  6. Find the critical value,  $t^*/2$ , for a sample size of 32, and corresponding to a 80% confidence level.

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