

Self-Check 8.2, 8.3

Name: _____ Date: _____ Row: _____

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1. You do a study of hypnotherapy to determine how effective it is in increasing the number of hours of sleep subjects get each night. You measure hours of sleep for 12 subjects with the following results. Construct a 95% confidence interval for the mean number of hours slept for the population (assumed normal) from which you took the data. Write an interpretation.
8.2; 9.1; 7.7; 8.6; 6.9; 11.2; 10.1; 9.9; 8.9; 9.2; 7.5; 10.5
2. A random sample of 15 statistics students were asked to estimate the total number of hours they spend watching television in an average week. The sample mean is 6.1 hours and sample standard deviation is 5.5 hours. Construct a 98% confidence interval for the mean number of hours statistics students will spend watching television in one week. Write an interpretation.
3. Suppose 250 randomly selected people are surveyed to determine if they own a tablet. Of the 250 surveyed, 98 reported owning a tablet. Using a 95% confidence level, compute a confidence interval estimate for the true proportion of people who own tablets.

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4. Find the critical value, $t_{\alpha/2}$, for a sample size of 21, and corresponding to a 95% confidence level.
5. Suppose an internet marketing company wants to determine the current percentage of customers who click on ads on their smartphones. How many customers should the company survey in order to be 90% confident that the estimated proportion is within five percentage points of the true population proportion of customers who click on ads on their smartphones?
6. Suppose a mobile phone company wants to determine the current percentage of customers aged 50+ who use text messaging on their cell phones. How many customers aged 50+ should the company survey in order to be 90% confident that the estimated (sample) proportion is within three percentage points of the true population proportion of customers aged 50+ who use text messaging on their cell phones, and the point estimate for the population proportion is 75%.

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