

Chapter 7 .5 point extra credit

- 1. What is/are the purpose(s) of confidence intervals?
- 2. Confidence intervals consist of an estimate ± error. Describe what is mean by "error."
- 3. Traditionally, confidence intervals are constructed at the 95% confidence level. Describe two methods of increasing the probability that the interval obtained contains the true population parameter.
- 4. A group of researchers was investigating the effect of early childhood intervention on the IQ tested later on in the upper elementary grades. A well-known IQ test with a mean of 100 was used to assess intelligence. A group of 40 ten year-olds from an economically disadvantaged area of a Midwestern city was given this IQ test, and a mean of 82 with a sample SD of 16 was obtained.
  - a. What is the 95% confidence interval for the study described above?
  - b. Provide an interpretation of your answer to part A.
  - c. Does the known population mean of 100 fall within the interval?
  - d. Provide an interpretation of your answer to part C.
- 5. The National Heart, Lung, and Blood Institute completed a large-scale study of cholesterol and heart disease, and reported that the national average for blood cholesterol level of 50-year old males was 210 mg/dl. A total of 89 men with cholesterol readings in the average range (200 220) volunteered for a low cholesterol diet for 12 weeks. At the end of the dieting period their average cholesterol reading was 204 mg/dl with a SD of 33 mg/dl.
  - a. What is the 95% confidence interval for the study described above?
  - b. Provide an interpretation of your answer to part A.
  - c. Does the known population mean of 210 mg/dl fall within the interval?
  - d. Provide an interpretation of your answer to part C.
  - e. How would (1) decreasing the sample size and (2) decreasing the confidence level affect the size of the interval calculated in part A? Explain your answer.