

Homework #4
Chapter 8

Please answer the following questions from the textbook. Do not handwrite the answers (except for graphs or plots); please use a wordprocessor (e.g. Word, Wordperfect, etc.). For writing formulas in word go to insert → object; and select Microsoft Equation 3.0 or Mathtype).

Chapter 8

- 1) The psychology department at CSUN has a strong belief that students in our department are learning “core” topics in the 320 courses better than students at other CSUs. The average across the CSUs is roughly 67%. If we wanted to test our belief that are students are better:
 - a. What is the null hypothesis?
 - b. What is the alternative hypothesis?
- 2) Every day that I pick up lunch down in the Sierra Center I end up spending about \$7 give or take about \$.50 or so.
 - a. Draw a rough sketch of this distribution of my lunch expenditures.
 - b. If, without looking at the total, I pay for my lunch with a \$10 bill and receive \$1 back in change, should I worry that I was overcharged?
Explain your answer in terms of probability.
 - c. What would be a Type 1 error for this example?
 - d. What would be a Type 2 error for this example?
- 3) In your own words, define “sampling error”.
- 4) In your own words, what is the difference between a “distribution” and a “sampling distribution”?
- 5) If I wanted to create a sampling distribution of standard deviations, how would I go about doing that? What do you think would be the central tendency (i.e. mean) of this distribution?
- 6) I stated in class that the α level (Type 1 error) for a given test is chosen by the researcher and that both the β level (Type 2 error) and power ($1 - \beta$) is something that is calculated from the analysis. In your own words, how does picking different levels of α affect the level of β ?
- 7) In your own words, explain the benefit(s) of conducting a 1-tailed test vs. a 2-tailed test. When is it better to perform a 2-tailed test?