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 $\alpha$ level (Type 1 error) for a given test is chosen by the researcher and that both the $\beta$ 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 $\alpha$ affect the level of $\beta$?

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?