Research Methods
Statistics Exercise
Yates

Answer the following questions. Some require the answer "not enough information."

1. A student makes 80 on a 100 point test. There are 300 students in the class. Assuming the scores are normally distributed:

   a. if $\bar{X} = 80$ and $S_x = 3$, what is the student's z-score?

   b. What is the z-score if $\bar{X} = 75$ and $S_X = 3$?

   c. What is the z-score if $\bar{X} = 75$ and $S_X = 5$?

   d. if the scores are <u>not</u> normally distributed, what is the student's z-score in a? in b? in c?

2. For each part of question 1, give the <u>percentage</u> of students who lie <u>above</u> the student. When you can't be precise, use a statement like "less than (more than) _____% lie above the student.")

3. Two random groups of 40 subjects each are given a set of jokes to rate for humor on a 1-7 scale. One group is "aroused" beforehand by riding an exercize bicycle. Here are the average results of the ratings.

   aroused: 6.3
   not aroused: 5.4
   $S_{\bar{Y}_{.1} - \bar{Y}_{.2}} = 0.3$

   State the hypotheses and evaluate H_0 at p = .05

4. Question 3 describes an experiment on "misattribution of arousal" which has actually been done. Based on the description in question 3, did the experimenter <u>actually</u> use a z-test or a t-test?

5. Rework question 3 for the .25 level of significance.

6. Rework question 3 and $S_{\bar{Y}_{.1} - \bar{Y}_{.2}} = 0.6$