MATH 210 - Test #3 - 11/14/97

All hypothesis tests must include the *null and alternative hypotheses*, the *test statistic* and the *p-value*. All hypothesis tests and confidence intervals must included a *fully written conclusion* in the context of the study.

Part A

The mean time that our class is supposed to meet is 50 minutes. My department chair chooses an SRS of 16 sessions, observes the class duration and calculates a mean meeting time of 47 minutes with standard deviation of 1 minute.

1. Does this data provide evidence at the .01 level that the mean meeting time for the class is *less than* 50 minutes?
[15]

2. To verify that the methodology you used above is valid you should make a histogram of the data and check for two things. Explain what two things should be checked **and why**.
[5]

Part B

You read an article stating that 70% of U.S. college students support legalized abortion.

1.   Suppose you choose an SRS of 50 Manchester students and 29 of them say they support legalized abortion. Is there evidence at the .05 level to conclude that the percent of Manchester supporting legalized abortion is *different* from 70%?

[15]

2.   Use the sample results above to construct a *90%* confidence interval for the actual percent of M.C. students supporting legalized abortion.

[10]

3.   Suppose you wanted to re-do the confidence interval in #2, still having 90% confidence but with a margin of error of only 8%. How many students must be included in the poll?

[5]

4.   Justify why the sample of 50 people is large enough for your conclusions in #1 and #2 to be valid.

[5]