**Homework 13.2 \*\*10 points show ALL steps for full credit\*\*\***

**Treating AIDS**

The drug AZT was the first drug that seemed effective in delaying the onset of AIDS. Evidence for AZT’s effectiveness came from a long randomized comparative experiment. The subjects were 1300 volunteers who were infected with HIV, the virus that causes AIDS, but did not yet have AIDS. The study assigned 435 of the subjects at random to take 500 milligrams of AZT each day and another 435 to take a placebo. (The others were assigned to a third treatment; however, we will only compare only two groups). At the end of the study, 38 of the placebo subjects and 17 of the AZT subjects had developed AIDS. Test the claim that taking AZT lowers the proportion of infected people who will develop AIDS in a given time period.

**ARE URBAN STUDENTS MORE SUCCESSFUL?**

North Carolina State University looked at the factors that affect the success of students in a required chemical engineering course. Students must get a C or better in the course in order to continue as chemical engineering majors. 65 students from urban or suburban backgrounds were randomly selected, and 52 of these students succeeded. 55 students from rural or small-town backgrounds were randomly selected; 30 of these students succeeded in the course.

(a) Give a 90% confidence interval for the true difference in success rates for urban/suburban students versus rural students in the required chemical engineering course.

(b) Based only on this confidence interval, do you think the difference in success rates is statistically significant?

**ARE GIRLS OR BOYS MORE SUCCESSFUL ?**

The North Carolina State University Study (from the previous problem) also looked at possible difference in the proportions of female and male students who succeeded in the course. They randomly selected 34 women who had taken the course. 23 out of the 34 women succeeded. They randomly selected 89 men who had taken the course. 60 of the 89 men succeeded. Is there evidence of a difference between the proportions of women and men who succeed?