The data we are working with for this project was derived from a survey given to all math 171 students at Longwood University at the beginning of the semester. For the previous two assignments we worked with participants preferred political party and participants heights. For this paper the data we are analyzing is based on the weights of male and female students who took the survey.

For the purposes of this paper I decided to make population one represent the weight of female math 171 student at Longwood and population two represent the weight female math 171 students at Longwood. The sample mean for population one (represented by $\bar{x}_1$) shows the average weight of female students that took the survey. To calculate $\bar{x}_1$, I added all data values from population one and divided by the amount of participants (represented by n_1). In this case the n_1 of population one was 53. To find the standard deviation of population one (represented by s_1,) I used the code STDEV.S in excel. To do this I typed the code in an empty box on the data sheet, then selected the range of data by clicking the first data in the set and the last data in the set. I chose to make population two (shown as n_2) represent the weight of male math 171 student at Longwood. The sample mean for population two (represented by $\bar{x}_2$) represents the average weight of all participants in sample two (all female students that took the survey). To find the sample standard deviation of population two (represented by s_2) I again used the code STDEV.S in excel and followed the same steps I discussed previously in reference to finding the sample standard deviation for population one. The mean of population two is larger than the mean of population one, this could be the case because there was less data to represent male weight than female weight or simply because the males that took the survey weighed more than the females that took the survey.

For each problem we had to find a different confidence interval for the data. For the 99.9 confidence interval I calculated the standard error using the formula for standard error that can be found in the book (see notes), then I calculated the t* by dividing 1.999 by two and then input that data into the inverse t function of the calculator with the degrees of freedom being 94 (n_1 + n_2 - 2). I was able to find the margin of error by multiplying t* by the standard error. I typed all that information into the calculator under the stat test 2-SampTInt and got the values -52.09 and -4.675. Once I had all of this information, I was able to calculate the rest of the confidence intervals using this stat test. For the confidence interval 95% I got the values -42.19 and -14.57. For the confidence interval 90% I got the values -39.93 and -16.83. A confidence interval helps you determine an interval estimate of the population parameter.