*The 2004 General Social Survey (GSS) interviewed a random sample of adult Americans. For one question
the interviewer asked: "From time to time, most people discuss important matters with other people. Looking
back over the last six months- who are the people with whom you discussed matters important to you? Just tell
me their first names or initials." The interviewer then recorded how many names or initials the respondent
mentioned. Results are tallied in the following table:*

Number of Close Friends	0	1	2	3	4	5	6	Total
Count (number of respondents)	397	281	263	232	128	96	70	1467

You can also find the results in the following Excel file:

> `http://people.hsc.edu/faculty-staff/blins/mayterm14/Labs/lab4.xls`

1. Identify the individuals and variable in the study. Is the variable categorical or quantitative?

2. This distribution is sharply skewed to the right, but a *t*-interval is still valid. Explain why.

3. Find a 90% confidence interval for the mean number of close friends in the population of American
   adults. Then draw the confidence interval using the number line below.
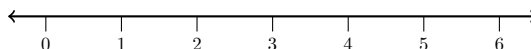
4. Which two of the following are reasonable interpretations of this confidence interval and its confidence
   level?

   A. You can be 90% confident that the mean number of close friends in the population is between
   the endpoints of this interval.

   B. Ninety percent of all people in this sample reported a number of close friends within this
   interval.

   C. If you took another sample of 1467 people, there is a 90% chance that its sample mean would
   fall within this interval.

   D. If you repeatedly took random samples of 1467 people, this interval would contain 90% of your
   sample means in the long run.

   E. If you repeatedly took random samples of 1467 peple and constructed *t*-intervals in this same
   manner, 90% of the intervals in the long run would include the population mean number of
   close friends.

   F. This interval captures the number of close friends for 90% of the people in the population.

5. How would the confidence interval change if the sample size increased, but everything else remained the same?

In the remaining questions, we break the data down by gender:

Number of Close Friends	0	1	2	3	4	5	6	Total
Number of Respondents (male)	196	135	108	100	42	40	33	654
Number of Respondents (female)	201	146	155	132	86	56	37	813

Some summary statistics follow:

	Sample Size	Mean	SD
Male	654	1.861	1.777
Female	813	2.089	1.760

6. Explain why it is not appropriate to use the data above for a matched pairs hypothesis test, but it is OK to do a two-sample hypothesis test.

7. Is the difference between the average number of close friends for men versus women statistically significant? Be sure to state the null and alternative hypotheses and show your work.

8. How large is the difference between the average number of close friends for men and for women? Estimate the difference with a confidence interval (choose any confidence level you think is appropriate).