Name **MAT 330-Introduction to Statistics**
Date **Assignment #9**

1. A sample of size 97 from a population having standard deviation σ = 7 produced a mean of 47. The 99% confidence interval for the population mean (rounded to two decimal places) thus what is:

   Lower Limit of the interval:

   Upper Limit of the interval:

2. A random sample of 82 customers, who visited a department store, spent an average of $71 at this store. Suppose the standard deviation of expenditures at this store is σ = $19. The 98% confidence interval for the population mean (rounded to two decimal places) is:

   The lower limit is:

   The upper limit is:

3. A researcher wants to make a 99% confidence interval for a population mean. She wants the margin of error to be within 4.6 of the population mean. The population standard deviation is 18.22. The sample size that will yield a margin of error within 4.6 of the population mean is:

4. A researcher wants to make a 99% confidence interval for a population proportion. A preliminary sample produced the sample proportion of 0.680. The sample size that would limit the margin of error to be within 0.024 of the population proportion is:

5. A company wants to estimate, at a 95% confidence level, the proportion of all families who own its product. A preliminary sample showed that 30.0% of the families in this sample own this company's product. The sample size that would limit the margin of error to be within 0.045 of the population proportion is:

6. The Elk's Survey Company employs 2000 people to conduct telephone surveys. Because many people don't like to answer such surveys, many "hang-ups" (whereby the person hangs up without completing the survey) occur. The owner of Elk's wants to determine the mean number of "hang-ups" per employee on a particular day, using 95% confidence. He samples 50 employees, and finds that the mean number of "hang-ups" on that day was 41.0. Suppose that the standard deviation of the number of "hang-ups" for all employees is 21.8. What is the value of the margin of error? (round to four decimal places)

7. In a random sample of 53 items produced by a machine, the quality control staff found 5 of them to be defective. Calculate the point estimate of the population proportion of defective items. (round to four decimal places)