1. Suppose we are interested in the mean scores on an exam. A random sample of 36 scores is taken and gives a sample mean (sample mean score) of 68 ($\overbar{x}$= 68). In this example we have the unusual knowledge that the population standard deviation is 3 points. Do not count on knowing the population parameters outside of textbook examples. Find a confidence interval estimate for the population mean exam score (the mean score on all exams). Find a 90% confidence interval for the true (population) mean of statistics exam scores.

2. A manufacturer of salad dressings uses machines to dispense liquid ingredients into bottles that move along a filling line. The machine that dispenses salad dressings is working properly when 8 ounces are dispensed. Suppose that the average amount dispensed in a particular sample of 35 bottles is 7.91 ounces with a variance of 0.03 ounces squared, $s^{2}$. Is there evidence that the machine should be stopped and production wait for repairs? The lost production from a shutdown is potentially so great that management feels that the level of significance in the analysis should be 99%.

3. A psychologist has developed a new test of spatial perception, and she wants to estimate the mean score achieved by male pilots. How many people must she test if she wants the sample mean to be in error by no more than 2.0 points, with 95% confidence? An earlier study suggests that .