1.  Suppose you are a buyer of large supplies of light bulbs. You want to test, at the 5% significance level, the manufacturer's claim that his bulbs last more than 800 hours. You test 36 bulbs and find that the sample mean is 816 hours and the sample standard deviation is 70 hours. Should you accept the claim?

2.  In justifying their demand for higher wages, the employees in the shipping department of a large mail order house report that on the average, the department completes an order in 13 minutes. As a general manager for this firm, what can you conclude if a sample of 400 orders shows an average completion time of 14 minutes with a standard deviation of 10 minutes? Use a .05 level of significance.

3.  In investigating several complaints concerning the weight of the "NET WT. 12 OZ." jar of a local btand of jam, the Better Business BUreau selected a sample of 36 jars. The sample showed an average net weight of 11.92 ounces and a standard deviation of .3 ounce. Using a .01 level of significance, what would the Bureau conclude about the operation of the local firm?

4.  A certain printing press is known to turn out an average of 45 copies a minute. In an attempt to increase its output, an alteration is made to the machine, and then in 3 short test runs it turns out 46, 47, and 48 copies in a minute. Is this increase statistically significant, or is it likely to be simply the result of chance variation? Use a significance level of .05.

5.  Past experience has shown that the scores of students who take a certain mathematics test are normally distributed with mean 75 and variance 36. The Mathematics Department members would like to know whether this

year's group of 16 students is typical. They test this year's students and find the average score is 82. What conclusion should be drawn?