

NOTE: All questions should be handed in.
Selected questions would be graded.
Numbers in parentheses () indicate exercises / pages in 7th Ed. &
numbers in square brackets [] indicate pages in 6th Ed. of the
textbook.

1. Do Exercises 9.5, 9.7 & 9.13 ([9.5, 9.7 & 9.8]) on page 407-8 (404-5) [390-1] in the textbook.
2. Do Exercise 9.61 ([9.38]) on page 428 (423) [411] in the textbook.
3. **Beer Drinking.** The mean annual consumption of beer per person in the US is 22.0 gallons . A random sample of 300 Washington D.C. residents yielded a mean annual beer consumption of 27.8 gallons. At the 10% significance level, do the data provide sufficient evidence to conclude that the mean annual consumption of beer per person for the nation's capital differs from the national mean? Assume that the standard deviation of annual beer consumption for Washington D.C. residents is 55 gallons.
4. Do Exercise 9.111, 9.112 & 9.114 ([9.71, 9.72 & 9.73]) on page 447 (443) [431] in the textbook. In each one of the problems answer part (a) only.
5. Do Exercise 9.117 ([9.75]) on page 447 (443) [431] in the textbook. Use the p-value approach to hypothesis testing. Assume normality for the cadmium level in mushrooms.
6. Do Exercise 3 above but use the p-value approach to hypothesis testing.
7. Do Exercise 9.147 ([9.91]) on page 458 (453) [442] in the textbook.

Exercises for recitations (04/01 - 04/07):

1. (The wording in this paragraph was also given in the recitation exercises for assignment 7) As reported by the Department of Agriculture in Crop Production, the mean yield of oats for U.S. farms is 58.4 bushels per acre. A farmer wants to estimate his mean yield using an organic method. He uses the method on a random sample of 25 1-acre plots and obtained a mean of 61.49 and a standard deviation of 3.754 bushels. Assume yield is normally distributed.

Assume now that the standard deviation is a population standard deviation. Does it appear that the farmer will get a mean yield different from the national average by using the organic method? Answer this question by carrying out a test of hypothesis. Use $\alpha=0.01$.

2. Biological Oxygen Demand (BOD) is an index of pollution that is monitored in the treated effluent of paper mills on a regular basis. From 43 determinations of BOD (in pounds per day) at a particular paper mill during the Spring of 1992, the mean and SD were found to be 3,246 and 757, respectively. The company has set the target that the mean BOD should be 3,000 pounds per day. Do the sample data indicate that the actual amount of BOD is significantly off the target? Use $\alpha=0.05$.
3. Refer to problem above. Along with the determinations of BOD, the discharge of suspended solids (SS) was also monitored at the same site. The mean of the 43 determinations of SS was found to be 5,710 and the population standard deviation is assumed to be 1,720 pounds per day. Do these results strongly support the company's claim that the true mean SS is lower than 6,000 pounds per day? Use $\alpha=0.05$. Use a p-value to make your decision.
4. Refer to problem 2 but assume that the sample size is 20. Also assume that the estimated mean and standard deviation of the sample of 20 are the same as in 2. Test the hypothesis using $\alpha =0.10$. What assumption do you have to make for the test to be valid?