Complete the following, and give your results in a word processing document.

1. For problems 1-3 use Minitab to work parts of Computer Data Exercise 59 on page 343 of the textbook. First read parts (a)-(c) of this problem. Before getting into Minitab, make sure you have access to the data file data1.MTW from your book’s CDRom, the ST204 web page or the g:\drive in the statistics computer lab (206 Weber) — see also Lab Assignment 2 for more information on accessing data from the book. Then from within Minitab, select File, Open Worksheet to open the data worksheet, data1.MTW.
   a. Obtain descriptive statistics for the variables Price (selling price of home, in $1000s), Size (size of the home, in square feet) and Garage (1 if attached, 0 if not) using Stat→Basic Statistics→Display Descriptive Statistics. Copy and paste the results of the descriptive statistics from your session window to a document. (2 points)
   b. What are the mean and standard deviation of the selling price for the 105 houses in the sample? (2 points)
   c. Use Minitab to test whether the mean price is more than $220,000 at the .01 significance level. In Minitab, select Stat→Basic Statistics→I-Sample Z. Put Price in the Variables box and next to the Sigma box, put the value for the standard deviation obtained for the sample. If you are using the student version of Minitab, select Test mean; put the value 220 in the box to the right (since the price values are listed in $1000s); select the Alternative to be greater than; select OK. If you are using the professional version of Minitab, put the value 220 in the box to the right of Test mean; select Options; set the confidence level to 99; select the Alternative to be greater than; select OK twice. For both versions, copy and paste the results from the Session window into your document. (2 points)
   d. The hypotheses being tested are given with the results. How are the hypotheses listed stated differently that the way we would state these hypotheses in class? (2 points)
   e. Using the Minitab results from part (c), give all 5 parts of the hypothesis test including the p-value. Use the .01 significance level, as stated in part (c). What is the decision, and why? (3 points)

2. For the data set used in Problem 1, conduct a hypothesis test to determine whether the mean size of the homes in the population is greater than 2,100 square feet. Use a .01 level of significance.
   a. Modify the steps described in 1c above to conduct the test in Minitab. Copy and paste the results from the Session window into your document. (2 points)
   b. Using the Minitab results from part (a), give all 5 parts of the hypothesis test including the p-value. What is the decision, and why? (3 points)

3. For the data set used in Problem 1, consider the data on garages.
   a. The mean for the variable Garage is actually the sample proportion of homes that have an attached garage. State this value as a percentage (i.e. ___% of the homes in the sample have an attached garage). (2 points)
   b. Use Minitab to carry out a hypothesis test for testing whether more than 60% of the homes in the population have an attached garage. Use a .05 level of significance. In Minitab, select Stat→Basic Statistics→1 Proportion. Select Samples in columns, and put Garage within the corresponding box. Select Options, give the Confidence level as 95.0, Test proportion .60, and Alternative greater than. Select “Use test and interval based on normal distribution”. Then select OK twice to obtain the results. Copy and paste the results to your document. (2 points)
   c. Using the Minitab results from part (b), give all 5 parts of the hypothesis test including the p-value. Use the .05 significance level, as stated above. What is the decision, and why? (3 points)
4. We will use Minitab to work parts of Computer Data Exercise 62 on page 343 of the text book. First read parts (a)-(d) of this problem. Do not use the .01 significance level as stated. Instead, use the guidelines for interpreting p-values given on page 317 of the textbook. Before getting into Minitab, make sure you have access to the data file data4.MTW from your book’s CD Rom, the ST204 web page or the g:\ drive in the statistics computer lab (206 Weber). Then from within Minitab, select File, Open Worksheet to open the data worksheet, data4.MTW.

   a. Obtain descriptive statistics for the variables Salary (mean salary of teachers in $s) and Attend (attendance rate as a percentage) using Stat→Basic Statistics→Display Descriptive Statistics. Copy and paste the results of the descriptive statistics from your session window to a document. (2 points)

   b. Would you agree with the statement that the mean salary in the region is at least $35,000? Carry out the necessary hypothesis test to answer this question by modifying the steps described in 1c. Copy and paste the results from the Session window into your document. (2 points)

   c. Using the Minitab results from part (4b), give all 5 parts of the hypothesis test including the p-value. What is the decision, and why? Justify your answer using the guidelines for interpreting p-values given on page 317 of the text book. (3 points)

   d. The attendance rates for the school districts in the region are given as percentages. Obtain a 95% confidence interval for the mean attendance rate. Select Stat→Basic Statistics→1-Sample Z. Put Attend in the Variables box and next to the Sigma box, put the value for the standard deviation obtained for the sample. If you are using the student version of Minitab, then select Confidence interval, and set the level to 95.0. Then select OK. If you are using the professional version of Minitab, make sure that the box next to Test mean is blank; select Options; set the Confidence level to 95; make sure that the Alternative is not equal; select OK twice. For both versions, copy and paste the results from the Session window into your document. (2 points)

   e. Based on the interval obtained for part (d), should a test for $\mu = 90$ be rejected at the .05 significance level? Why, or why not? (3 points)

   f. Run the hypothesis test indicated in part (e). Select Stat→Basic Statistics→1-Sample Z. Put Attend in the Variables box and next to the Sigma box, put the value for the standard deviation obtained for the sample. If you are using the student version of Minitab, select Test mean; put the value 90 in the box to the right; select the Alternative to be not equal; select OK. If you are using the professional version of Minitab, put the value 90 in the box to the right of Test mean; select Options; select the Alternative to be not equal; select OK twice. For both versions, copy and paste the results from the Session window into your document. (2 points)

   g. Would you agree with the statement that the mean attendance rate in the region is 90%? Justify your answer using the guidelines for interpreting p-values given on page 317 of the textbook. (3 points)