

STAT 6371 HW 4

I would like for this class to allow you to practice preparing professional looking reports. For this reason, for HW 4 we will require all reports to be typed and all graphs (unless otherwise noted) to be computer generated and copied and pasted into your report. If you would like help with Word or Excel please don't hesitate to ask. The only non-computer generated graphs for this HW should be the normal plots for step two of the hypothesis test.

1. You do not need to type these up and turn them in but be sure and read Ch 4 and answer the conceptual problems at the end of the Chapter.
2. Problem 20 from the text.
3. Problem 21 from the text.
4. Problem 22 from the text.
5. Write up a complete analysis using the information you have gained from problems 2,3, and 4.
 - a. State the problem.
 - b. State the assumptions you are making, why you are making them. Justify your decisions. Print out any histograms, qq plots, box plots etc. that you use in your justification.
 - c. Show all 6 steps of the hypothesis test for the rank sum test of the Trauma data. Use the p-values, confidence limits etc. obtained from questions 2,3 and 4 above.
6. Conduct either a pooled two sample t-test or a Welch's two sample t test on the Trauma data used above.
 - a. State the assumptions / reasons you chose the test you did. Be sure and back your answer up with what you know about theory as well as with histograms, box plots, qq plots etc.
 - b. Show all 6 steps (including a thoughtful, thorough yet non-technical conclusion.
7. **BONUS (2pts):** Using our permutation test SAS code that we have used in the last two HW's,:
 - a. Build the permutation distribution for the rank sum statistic used in question 2 and 3. Use 5000 permutations. Use SAS to fit / overlay a normal curve to the resulting histogram. Compare the mean and standard deviation of this normal curve that was fit to the permutation / randomization distribution to the μ and σ you found in question 2.
 - b. Compare the one sided p-value found in this permutation distribution with the one found in question 2.