Math 222 - Midterm 2 Review

Midterm 2 will focus on the following topics.

Comparing two proportions using both the two sample z-test, and using permutation tests. Related topics: plus-4 confidence intervals for the difference in two proportions, relative risk, and odds ratios.

Recommended Practice Problems: 8.39, 8.49, 8.53, 8.57.

Comparing two means using both the two sample t-test and using permutation tests. Make sure you understand when to use one sample techniques for matched pairs data.

Recommended Practice Problems: 7.61, 7.63, 7.69, 7.75, 7.126, 7.141, 16.53.

Chi-squared test for goodness of fit You should be able to calculate χ^2 by hand, and know how many degrees of freedom there are. You can use the R functions `pchisq()` and `qchisq()` to express your answers if you need to work with percentiles on the chi-squared distribution.

Recommended Practice Problems: 9.40, 9.41.

Chi-squared test for association Make sure you are comfortable working with two way tables and understand row and column proportions, segmented bar graphs, and mosaic plots.

Recommended Practice Problems: 9.11, 9.13, 9.14, 9.15, 9.17.

Correlation Remember that the correlation coefficient r only measures the strength of a linear trend.

Recommended Practice Problems: 2.49, 2.50.

Least Squares Regression Make sure you can interpret the slope of a regression line in words. Also, understand regression to the mean, and that r^2 represents the percent of the variance in y-values that is explained by the trend.

Recommended Practice Problems: 2.63, 2.71, 2.75, 2.79.