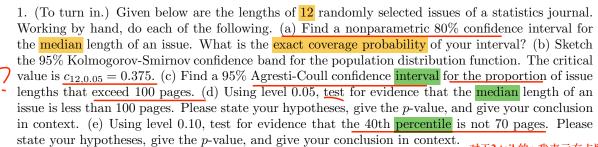
Math 8452, Homework #1. Due on 6/3/20 (Wed section) or 6/4/20 (Thu section).

Reading from the textbook:

- Read Chapter 1 on the advantages of nonparametric methods.
- Read Section 2.1 on an exact binomial test procedure related to the sign test.
- Read Section 3.4 on the sign test.
- Read Section 3.6 on confidence intervals for the median.
- For next week, read Section 3.1 on the signed rank test.
- For next week, read Section 4.1 on the rank sum test.

Problems to do:



对于2 tail 的p 我表示有点疑惑

他们有的是same value 怎么排序的

69 92 92 99 96 115 95 96 103 92 77 117

- 2. (To turn in.) Working by hand, find 90% nonparametric confidence intervals for the 30th and 50th percentiles for the case when n = 9. What is the exact coverage probability for each?
- 3. (To turn in R code and written answers.) Using the simulation studies that we did in class as a guide, do a simulation study to assess the robustness of the one-sample two-tailed t test with exponential data. For sample sizes ranging from 5 to 50, simulate to estimate the true α level for a nominal level-0.05 test when the data are exponential rather than normal. What do you conclude about whether the test is robust or not? (Hint: Note that the true mean is not 0.)
- 4. (Not to turn in.) If you haven't done so already, please download R to your computer. Work through the R guide posted on the webpage. Let me know if you run into any questions!

Non-normal population distributions, especially those that are thick-tailed or heavily skewed, considerably reduce the power of the test

The t-test assumes that the means of the different samples are normally distributed; it does not assume that the population is normally distributed.

The t-test is invalid for small samples from non-normal distributions, but it is valid for large samples from non-normal distributions