Week 3 Suggested Readings and Practice Exercises

Suggested readings and practice problems from OpenIntro Statistics, 3rd edition (a free online introductory statistics textbook co-authored by Dr. Cetinkaya-Rundel) for this week:

Suggested reading: Chapter 5, Section 5.1, 5.2, 5.3, 5.4

Suggested reading:
http://bcs.whfreeman.com/webpub/statistics/ips8e/student%20resources/companion%20chapters/c16BootstrapMethodsAndPermutationTests.pdf

Suggested exercises: (End of chapter exercises from OpenIntro Statistics)

- t-inference: 5.1, 5.3, 5.5, 5.13, 5.17, 5.19, 5.21, 5.23, 5.27, 5.31, 5.35, 5.37
- Power: 5.39
- Comparing three or more means (ANOVA): 5.41, 5.43, 5.45, 5.47, 5.49, 5.51
- Simulation based inference for means

(Reminder: the solutions to the end of chapter exercises are at the end of the *OpenIntro Statistics* book)

Test yourself:

1. What is the t⋆ for a 95% confidence interval for a mean, where the sample size is 13.

2. What is the p-value for a hypothesis test where the alternative hypothesis is two-sided, the sample size is 20, and the test statistic, T, is calculated to be 1.75?

3. 20 cardiac patients' blood pressure is measured before taking a medication, and after. For a given patient, are the before and after blood pressure measurements dependent (paired) or independent?

4. A random sample of 100 students were obtained and then randomly assigned into two equal sized groups. One group went on a roller coaster while the other in a simulator at an amusement park. Afterwards their blood pressure measurements were taken. Are the measurements dependent (paired) or independent?

5. Describe how the two sample means test is different from the paired means test, both conceptually and in terms of the calculation of the standard error.

6. A 95% confidence interval for the difference between the number of calories consumed by mature