Recitation 3 - P8130 Fall 2017

September 29, 2017

Problem 1

Rosner textbook 8th edition, 7.35-7.37.

Problem 2

Rosner textbook 8th edition, 8.25-8.29.

Problem 3

Rosner textbook 8th edition, 8.54-8.55.

Problem 4

In a pediatric clinic a study is carried out to see how effective aspirin is in reducing temperature. Twelve 5-year-old children suffering from influenza had their temperatures taken immediately before and 1 hour after administration of aspirin. The results are given in the following table. Suppose we assume normality and want to test the hypothesis that aspirin is reducing the temperature.

Patient	Before	After
1	102.7	99.0
2	103.5	100.3
3	102.2	101.0
4	103.0	100.9
5	101.2	99.6
6	100.4	99.9
7	101.8	100.2
8	103.1	100.0
9	102.5	100.3
10	101.7	100.3
11	102.1	101.5
12	101.3	100.2

a What are the null and alternative hypotheses in this situation?

b In words, what is meant by a type I error in this situation?

c Suppose the alternative that aspirin reduces the mean temperature by 1 degree is considered. What is meant by power of the test against this specific alternative?

d How would the power change if the alternative were a mean temperature reduction of 2 degrees?

e Compute the power for the alternatives mentioned in c and d.

f Perform a significance test for the hypothesis in problem a. Are there any possible alternative explanations for the results obtained?