Problem 1 (20 Bonus Points)

A manufacturer of watches has established that on average his watches do not gain or lose. He also would like to claim that at least 95% of the watches are accurate to ±0.2 s per week. A random sample of 15 watches provided the following gains (+) or losses (−) in seconds in one week:

+0.17 -0.07 +0.13 +0.05 +0.23 +0.01 +0.06 +0.08

+0.14 +0.10 +0.08 +0.11 +0.05 -0.87 +0.05

Can the claims be made with a 5% chance of being wrong? You can assume that the inaccuracies of these watches are normally distributed.

Note: There are two claims from the manufacturer.

The sample mean is: 0.02133; the sample standard deviation is: 0.25626

Perform two tests of hypothesis with the rejection region approach. Then calculate the p-value and construct the appropriate CI. Check if the assumptions for those tests are satisfied. All of your calculations should be based on the standard normal table and t-table provided by this course.