To compute the type 1 error of hypothesis testing lets vary the sample size of the textbook example of the mean burn of the sample of propellants.

Remember that in the textbook example if the mean sample result is less than 48.5 cm / sec, we reject the null hypothesis. The same happens if the result of the mean sample is greater than 51.5 we reject the null hypothesis.

The question was; what is the probability of rejecting the null hypothesis? Using the equation of the central limit theorem and the concepts of the normal distribution we made the following computation.

A math equations with numbers

Description automatically generated with medium confidence

Therefore, the probability of rejection of the null hypothesis, as well as the likelihood of rejection and wrongly rejection is 5.74%.

Questions:

1. If you change the sample size to 36 samples, the probability of rejecting the null hypothesis and committing type I error is higher?

True

False

2. If you change the sample size to 4 samples, the probability of rejecting the null hypothesis and committing type I error is higher?

True

False

3. Why do you think that the size is important in hypothesis testing? Answer in your own words.

The size of the sample is crucial in hypothesis testing because it directly impacts the reliability of the results. A larger sample size provides a more representative and accurate picture of the population, reducing the variability in the estimates and increasing the precision of the hypothesis test. With a larger sample size, the margin of error decreases, allowing for more confident conclusions from the data. This reiterates the importance of reliability and precision in obtaining trustworthy and meaningful results in hypothesis testing.