Conditions

Given a sample size of 65, with sample mean 726.2 and sample standard deviation 85.3, we perform the following hypothesis test.
0 H :m = 750
1 H :m < 750
What is the conclusion of the test at the a = 0.10 level? Explain your answer.

Solution

This is the question for one-sampled t-criterion.

$H_0: M_1 = 750$

$H_a: M_1 < 750$

$$t = \frac{|\overline{x} - m|}{s_X/\sqrt{n}}$$

$$s_X^2 = \sum_{t=1}^{n} (X_t - \overline{X})^2/(n-1)$$

For this example:

$t = 2.249493$

The degrees of freedom:

$k = 65 - 1 = 64$

For these degrees of freedom the t-criteria value is:

1.997 – for p=0.95

$t = 2.249493 > 1.997$

We can make a conclusion, that with probability 95% H0 is rejected, Ha – approved.