

Fact Sheet – One Mean Tests

Identification

- The one mean test compares the unknown mean of a population to a particular value.
- The summary of the sample will include the mean, standard deviation, and size, or you could have a set of data instead.
- The data are quantitative (numerical) not qualitative (categorical).

Differences

Step 1: Use the symbol μ instead of the symbol p .

Step 3: “One Mean Test”

Step 4: The test statistic is t , not z .

Conditions: $20n \leq N$, Normally Distributed (with data), No Outliers (with data)

StatCrunch Directions

With Summary: Stat > T Statistics > One Sample > Summary

- Enter sample data, click Next.
- Enter value of μ_0 , select alternative hypothesis.

With Data:

- Create QQ Plot. Verify that the graph is linear & correlation statistic is greater than value from the table. (See "Normality - Section 7.3" in class document.)
- Create Boxplot. Verify that there are no outliers.
- Stat > T Statistics > One Sample > Data
- Select column containing the data, click Next.
- Enter value of μ_0 , select alternative hypothesis.

Examples

1) A recent "Pop-Up Video" on VH1 claimed that the mean age of women at their first marriage is 25. A random sample of 104 married females had a mean age of 22.4 years old at their first marriage, with a standard deviation of 4.63 years. At the 0.05 level of significance, test the claim made by "Pop-Up Video".

2) A counselor at a community college claims that the mean GPA for students who have transferred to State University is higher than 3.0. A random sample of 45 such students had a mean GPA of 3.12 with a standard deviation of 0.31. Test the counselor's claim at the 0.05 level of significance.

3) An experimental algebra exam is given to 20 randomly selected college algebra students. Here are their scores.

68	94	50	60	92	14	49	68	41	67
76	71	32	15	54	54	65	92	58	68

At the 0.05 level of significance, test the claim that the mean score for all college algebra students on this exam is below 60.

4) These are the number of packages handled by a shipping office on 17 randomly selected days.

1103	1488	1713	1536	1037	1462	1625	1627	1080
1216	1639	1539	1545	907	1307	1387	1547	

Test the claim that the shipping office handles more than 1200 packages per day at the 0.01 level of significance.