



HYPOTHESIS TESTING BY CALCULATOR

Step 1 – Identify the claim to be tested; use the correct symbols to write the claim symbolically based on which key words are used

- p**: “proportion”, “ratio”, “percent”
- μ** : “mean”, “average”
- =**: “has not changed”, “is the same as”
- \neq** : “has changed”, “is different from”
- >**: “increased”, “more than”, “slower”
- <**: “decreased”, “less than”, “faster”

Step 2 – Write the Null and the Alt. Hypotheses

- H₀**: the null states the equality
- H_A**: the alternative states the inequality

Step 3 – Decide which test to use, input data, choose (highlight) the inequality in H_A

1: Z-Test (Test for a mean; σ known)

- Inpt: Data** **Stats**
- μ_0** : hypothesized population mean
- σ** : population standard deviation
- \bar{x}** : sample mean
- n**: sample size
- $\mu \neq \mu_0$ $< \mu_0 > \mu_0$**

OUTPUT Z-Test

- μ** : alternative hypothesis
- z**= test statistic
- p**= p-value
- \bar{x}** = sample mean
- n**= sample size



HYPOTHESIS TESTING (continued)

2: T-Test (Test for a mean; σ unknown)

- Inpt: Data** **Stats**
- μ_0** : hypothesized population mean
- \bar{x}** : sample mean
- Sx**: sample standard deviation
- n**: sample size
- $\mu \neq \mu_0$ $< \mu_0 > \mu_0$**

OUTPUT T-Test

- μ** : alternative hypothesis
- t**= test statistic
- p**= p-value
- \bar{x}** = sample mean
- Sx**: sample standard deviation
- n**= sample size

Test for a proportion (percentage)

5: 1-PropZTest

- Inpt: Data** **Stats**
- p_0** : hypothesized population proportion
- x**: number of “successes” in the sample
- n**: sample size

OUTPUT 1-PropZTest

- prop**: alternative hypothesis
- z**= test statistic
- p**= p-value
- \hat{p}** = sample proportion
- n**= sample size

Step 4 – Compare the p-value with \hat{y} and decide whether or not to reject H₀

“WHEN THE ‘P’ IS LOW, REJECT H.O.”

Step 5 – Write conclusion in context of the claim