**Case 1: One Variable (Population)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Assumptions | is known | is unknown | and | Data comes from Normal Population |
| Parameter of interest: | Mean, | Mean, | Proportion, | Variance, |
| Confidence Interval  Formula: |  | with |  | with |
| Name of Hypothesis  Test, | One sample -test, | One sample -test, | One sample test of proportion | One sample test for Variance |
| Test Statistic  Formula: |  | with |  | with |
| p-value: | , p-value=  , p-value=  , p-value= | , p-value=  , p-value=  , p-value= | , p-value=  , p-value=  , p-value= | , p-value=  , p-value=  , p-value= |

**Case 2: Two Numerical Variables (Populations)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Dependent Samples  (Paired Samples) | Independent Samples | | Two Normal Populations Independent Samples |
| Parameter of interest: | Mean Difference, | Mean Difference, | Proportion Difference, | Ratio of variances, |
| Confidence Interval  Formula: | with  where | with |  | with  and |
| Name of Hypothesis  Test, | Paired samples-test, | Two independent samples -test, | Two sample test of proportion | Two sample test for variance |
| Test Statistic  Formula: | with | with | and | with  and |
| p-value: | , p-value=  , p-value=  , p-value= | | , p-value=  , p-value=  , p-value= | , p-value=  , p-value= |

**Case 3: More than Two Populations (Multinomial Experiment, Contingency Table, Test of Homogeneity - ANOVA)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Multinomial Experiment,  Contingency Table, Homogeneity | | Analysis of Variance (ANOVA) |
| Parameter of interest: | Probability: | Probability | Mean: |
|  |  | Independency (Homogeneity) |  |
| Test Statistic  Formula: |  | |  |
| df and other items |  |  | , |
| p-value: | p-value= | | p-value= |