# Z- or t-Test

**Z:** if population standard deviation (σ) is known

**t:** if population standard deviation (σ) is unknown

**Assumptions:**

Population of {insert context here} is normally distributed

Simple random sample used to acquire data

10n<N Population is assumed to be very large

**Parameter of Interest:**

Population mean of {insert context here}: μ

**1-Proportion Z-Test**

**Assumptions:**

Simple random sample used to acquire data

Fits a binomial model

Sample size is sufficiently large enough to run Test

10n<N Population is assumed to be very large

**Parameter of Interest:**

Population proportion of {insert context here}: p

**2-Proportion Z-Test**

**Assumptions:**

Simple random sample used to acquire data

Fits a binomial distribution model

Sample sizes are sufficiently large enough to run test

Populations are assumed to be very large

**Parameter of Interest:**

Population difference in proportions of {insert context here}: 

**2-Sample Z- or t-Test**

**z:** if population standard deviations(&) for both samples are known

**t:** if population standard deviations(&) for both samples are unknown

**Assumptions:**

Populations of {insert context here} are normally distributed

Simple random sample used to acquire data

10n<N Population is assumed to be very large

**Parameter of Interest:**

Population mean difference of {insert context here}: 

# Matched Pair t-Test

**t:** population standard deviation is unknown

Loss of independence within sample

**Assumptions:**

Populations of {insert context here} are normally distributed

Simple random sample used to acquire data

10n<N Population is assumed to be very large

**Parameter of Interest:**

Population mean difference of {insert context here}: 

Note: You must construct a third list that is equal to the difference between the first

and second sets of data.

Note: Testing the same item twice (before/after)

**Null Hypothesis:**

**Z- or t-Test**

{assumed mean value}

**1-Proportion z-Test**

{assumed Proportion value}

**2-Proportion z-Test**

0

**2-Sample z- or t-Test**

0

# Matched Pair t-Test

0

**Linear Regression t-Test (Correlation)**

****There is no correlation.

**Linear Regression t-Test (Slope)**

****Slope is not significant

**Alternative Hypothesis:**

**z- or t-Test**

 {assumed mean value}

**1-Proportion z-Test**

 {assumed Proportion value}

**2-Proportion z-Test**



**2-Sample z- or t-Test**



# Matched Pair t-Test



**Linear Regression t-Test(Correlation)**



**Linear Regression t-Test(Slope)**



# Identifying Difference between 2-Sample t-Test and Matched Pair t-Test

Both ask the same question. Both look identical, except:

Matched Pair has a loss of independence in the sample.

**Look for:**

Before/After

Twins

Make sure that you notice the difference in notation for the Null and Alternative Hypotheses.

**Remember:**

If , there is sufficient statistical evidence to warrant the rejection of the null hypothesis.

If , there is not sufficient statistical evidence to warrant the rejection of the null hypothesis.

Keep in mind that *p* represents the probability that the data sample that you have acquired would have occurred if the null hypothesis was assumed to be true.