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"

≠ **:** "has changed", "is different from"

> **:** "increased", "more than", "slower"

< **:** "decreased", "less than", "faster"

Step 2 – Write the Null and the Alt. Hypotheses

H_O**:** 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; ð known)

Inpt: Data Stats

μ_O**:** hypothesized population mean

ð: population standard deviation

˜: sample mean

n: sample size

μ: ≠ μ_O **<** μ_O **>** μ_O

OUTPUT Z-Test

μ: alternative hypothesis **z**= test statistic **p**= p-value **˜**= sample mean

n= sample size

HYPOTHESIS TESTING (continued)

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

Inpt: Data Stats

μ_O**:** hypothesized population mean

˜: sample mean

Sx: sample standard deviation **n:** sample size

μ: ≠ μ_O **<** μ_O **>** μ_O

OUTPUT T-Test

μ: alternative hypothesis **t**= test statistic **p**= p-value **˜**= sample mean

Sx: sample standard deviation **n**= sample size

Test for a proportion (percentage)

5: 1-PropZTest

Inpt: Data Stats

p_O**:** 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

Þ= sample proportion

n= sample size

Step 4 – Compare the p-value with ÿ and decide whether or not to reject H_O

"WHEN THE 'P' IS LOW, REJECT H.O."

Step 5 – Write conclusion in context of the claim