

Hypothesis Testing by TI83 and 84 Graphing Calculator:

Procedure: Press STAT, Choose TESTS:

```
EDIT CALC TESTS
1:Z-Test...
2:T-Test...
3:2-SampZTest...
4:2-SampTTest...
5:1-PropZTest...
6:2-PropZTest...
7:Interval...
```

For proportions: 1-PropZTest; for Two Proportions, 2-PropZTest; For means, if σ known, Z-Test; otherwise, T-Test. For Two samples means, 2-SampTTest or 2-SampZTest.

1-PropZTest screen:

```
1-PropZTest
P0:0
x:0
n:0
PROPT0 <P0 >P0
Calculate Draw
```

P_0 is the population parameter stated in the Null Hypothesis. The values of x and n come from the sample data. Often, we are given the sample proportion p -hat; in that case multiply p -hat times n in order to find x . Round x to a whole number. Before hitting Calculate, choose the symbol that corresponds to the Alternative Hypothesis.

Z-Test:

```
Z-Test
Inpt:Data STAT
μ0:0
σ:0
x:0
n:0
μ:μ0 <μ0 >μ0
Calculate Draw
```

μ_0 is the population parameter stated in the Null Hypothesis. Enter the sample data, the known population standard deviation (that is why we use Z_Test in this case) and choose the symbol that corresponds to the Alternative Hypothesis.

The screen for 2_PropZTest:

```
2-PropZTest
x1:0
n1:0
x2:0
n2:0
P1:P2 <P2 >P2
Calculate Draw
```

In this case, we compare two proportions; x_1 and n_1 correspond to one of the samples; x_2 and n_2 to the other. Before hitting Calculate, choose the symbol that corresponds to the Alternative Hypothesis.

```
2-SampTTest
↑x1:0
  Sx1:0
  n1:0
  x2:0
  Sx2:0
  n2:0
↓μ1:μ2 <μ2 >μ2
```

T-Test compare two sample means, from each sample we input the sample mean (\bar{x}), the sample standard deviation, S_x and the sample size, n . Choose the corresponding symbol of the Alternative Hypothesis and calculate.

Note: the calculator output once the test is completed shows the p value. It appears as a small p equal to a value. That is all we need to draw a conclusion about a particular test. If p -value is less than stated α we reject the Null; otherwise we fail to reject the Null.

Example of Output of a 1-PropZTest:

```
1-PropZTest
PROP#.5
z=-1
P=.3173105191
p=.45
n=100
```

Example of Output of a T-Test:

```
T-Test
μ≠32
t=-1.150326657
p=.2600961241
x=31.5
Sx=2.3
n=28
```