

**Exercise 1:**

1. Use STAT TESTS to calculate a 99% confidence interval if 433 persons in a random sample of size 923 answered “yes” to the question posed.
  - a. Report the answer as an interval, in a form similar to (42.31%, 48.75%)
  
  
  
  
  
  
  
  
  
  
  - b. Report the answer in a form similar to  $45.53\% \pm 3.22\%$
  
  
  
  
  
  
  
  
  
  
2. Check your answer by doing the calculation “by hand,” that is without using STAT TESTS.

**Exercise 2:**

1. Use STAT TESTS to test the claim that a population proportion is 53%. Use a two-tail test. Report the test statistic and the  $p$ -value, and state your conclusion. In the random sample, 859 of the 1562 surveyed answered “yes.”
  
  
  
  
  
  
  
  
  
  
2. Check your answer by doing the calculation “by hand,” that is without using STAT TESTS.

## TI Calculator and StatCrunch Solutions to Exercises

## Exercise 1:

- Use STAT TESTS to calculate a 99% confidence interval if 433 persons in a random sample of size 923 answered “yes” to the question posed.

Here is the resulting calculator output:

```
1-PropZInt
(.42681, .51143)
P=.4691224269
n=923
```

- Report the answer as an interval, in a form similar to (42.31%, 48.75%)  
(42.68%, 51.14%)
  - Report the answer in a form similar to  $45.53\% \pm 3.22\%$   
 $46.91\% \pm 4.23\%$  (the margin of error can be found by subtracting the sample proportion from the upper end of the interval:  $51.14\% - 46.91\%$ )
- Check your answer by doing the calculation “by hand,” that is without using STAT TESTS.

$$\hat{p} = \frac{433}{923} = 0.4691 \quad se = \sqrt{\frac{.4691(1-.4691)}{923}} = 0.0164$$

$$me = 2.576se = 0.0422$$

$$\text{Interval: } (46.91\% - 4.22\%, 46.91\% + 4.22\%) = (42.69\%, 51.13\%)$$

Note that answers are slightly different due to rounding at each step.

## Exercise 2:

- Use STAT TESTS to test the claim that a population proportion is 53%. Use a two-tail test. Report the test statistic and the  $p$ -value, and state your conclusion. In the random sample, 859 of the 1562 surveyed answered “yes.”

Here is the resulting calculator output:

```
1-PropZTest
PROP# .53
z=1.578669541
P=.1144118831
P=.5499359795
n=1562
```

Test statistic  $z = 1.5787$ ,  $p$ -value = 0.1144, do not reject null hypothesis.

- Check your answer by doing the calculation “by hand,” that is without using STAT TESTS.

$$\hat{p} = \frac{859}{1562} = 0.5499 \quad se = \sqrt{\frac{.53(1-.53)}{1562}} = 0.0126$$

$$z = \frac{0.5499 - 0.53}{0.0126} = 1.5794 \quad p\text{-value (Table A)} = 2 * 0.0571 = 0.1142$$

Note that answers are slightly different due to rounding at each step.

A. In StatCrunch, open a “blank table,” which is the last option under the My Data heading.

**My StatCrunch for 19600608\_ecolleg**

**My Preferences**

Which version of StatCrunch do you prefer?

**My Data**

Click a data set link to analyze the data or edit its properties. Want

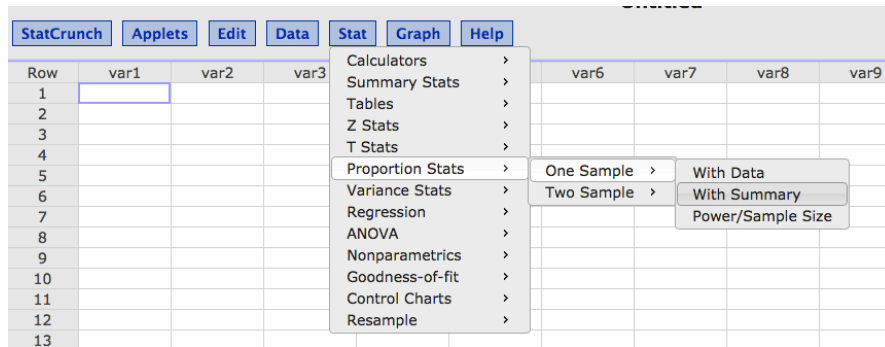
- Select a file on my computer
- Enter the WWW address of a file
- Paste data into a form
- Select a data file from Dropbox
- Select a data file from Google Drive
- Type or paste data into a blank data table

**My Results**

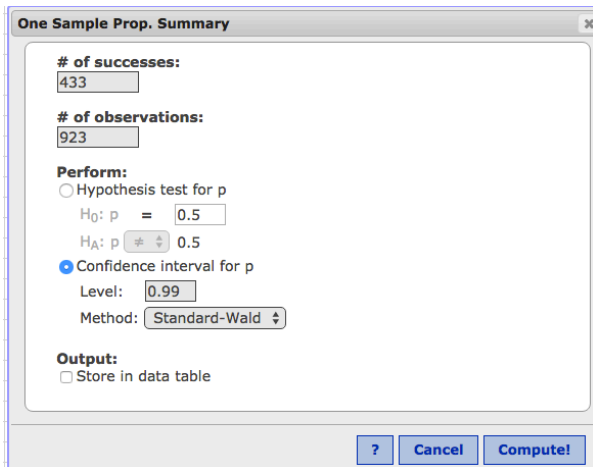
Click a result link to view it or edit its properties. To export a result

Options menu of a result window

B. The menu option for working with summary information (instead of raw data) can be found through the menu choices below:



C. This will allow you to enter the summary information, much as it works with the TI calculator. Here is what it looks like for **Exercise 1**:



D. The output is more thorough than you get from the TI calculator. Here is what it looks like for **Exercise 1**:

