

# TI-83/83 Plus: Confidence Interval for One-Sample Proportion

The following pages contain some instructions on the usage of the TI-86 loaded with the Inferential Statistics and Distribution Features of the TI-83 graphing calculator.

The example used below is taken out of David Moore's text titled "The Basic Practice of Statistics".

Example#8.5 Estimating risky behavior p. 437: The National AIDS Behavioral Surveys found that 170 of a sample of 2673 adult heterosexuals had multiple partners in the last year. That is,  $\hat{p} = 0.0636$ . We will act as if the sample were an SRS.

We would like to give a 99% confidence interval for the proportion  $p$  of all adult heterosexuals with multiple partners by using the standard normal distribution.

Press **[STAT]**. Press **[▶]** two times to scroll right to the TESTS menu option. Press **[▼]** several times to move the cursor down to **A:1-PropZInt**, which stands for one-sample z confidence interval for proportions. At this point, your screen should look like the screen on the left given below.

```
EDIT CALC TESTS
5:1-PropZTest...
6:2-PropZTest...
7:ZInterval...
8:TInterval...
9:2-SampZInt...
0:2-SampTInt...
1:1-PropZInt...
```

```
1-PropZInt
x:109
n:120
C-Level:.9
Calculate
```

```
1-PropZInt
x:170
n:2673
C-Level:.99
Calculate
```

Press **[ENTER]** to select **A:1-PropZInt** and go into the STAT TESTS menu screen. At this point, your screen should look like the screen in the middle given above with the cursor blinking by **x:**. You may possibly have different numbers.

Type in 170 for the value of **x**. Press **[▼]** to move the cursor down to **n:** Since the sample size is 2673, type in 2673 for the value of **n**. Press **[▼]** to move the cursor down to **C-Level:** Type in 0.99 for computing a 99% confidence interval for the population proportion. Press **[▼]** to move the cursor down to **Calculate** option. At this point, your screen should look like the screen on the right given above with the cursor blinking over the **Calculate** option.

Press **[ENTER]** to select the **Calculate** option. Your calculated result screen should look like the screen on the left given below.

```
1-PropZInt
(.05144, .07576)
P=.0635989525
n=2673
```

In addition to the confidence interval, the calculator will have computed the sample proportion,  $\hat{p}$ , and will display it along with the sample size  $n$ .

The interpretation of the above computed confidence interval in the context of the problem can be stated as follows. We are 99% confident that the proportion of adult heterosexuals who had more than one sexual partner in the past year lies between about 0.0514 and 0.0758.