

# How can I use a TI-84 calculator to find the margin of error?

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The TI-84 calculator can be used to find the margin of error by utilizing its statistical functions. This involves inputting the sample size, confidence level, and standard deviation into the calculator and using the appropriate formula to calculate the margin of error. By following these steps, the TI-84 calculator can assist in accurately determining the margin of error for a given data set, providing valuable information for statistical analysis and decision making.

## Find Margin of Error on a TI-84 Calculator

Often in statistics we use to estimate the value of a with a certain level of confidence.

Every confidence interval takes on the following form:

Confidence Interval =

The margin of error is equal to half the width of the entire confidence interval.

For example, suppose we have the following confidence interval for a population proportion:

95% confidence interval =

The width of the confidence interval is  $0.46 - 0.34 = 0.12$ . The margin of error is equal to half the width, which would be  $0.12 / 2 = 0.06$ .

The following examples show how to calculate the margin of error for confidence intervals on a TI-84

## calculator.

### Example 1: Margin of Error for a Population Mean

Suppose you would like to calculate the margin of error for a 95% confidence interval that estimates a population mean with the following information:

x: 30.4

s: 4.5

n: 50

To calculate the confidence interval for the population mean, press **STAT** and then scroll over to the right and press **TESTS**. Then press **7**:



Next, type in the following information and then press **CALCULATE**:



The confidence interval turns out to be (29.153, 31.647):



Margin of error:  $(31.647 - 29.153) / 2 = 1.247$

Example 2: Margin of Error for a Population Proportion

Suppose you would like to calculate the margin of error for a 95% confidence interval that estimates a

population proportion with the following information:

**x: 42**

**n: 90**

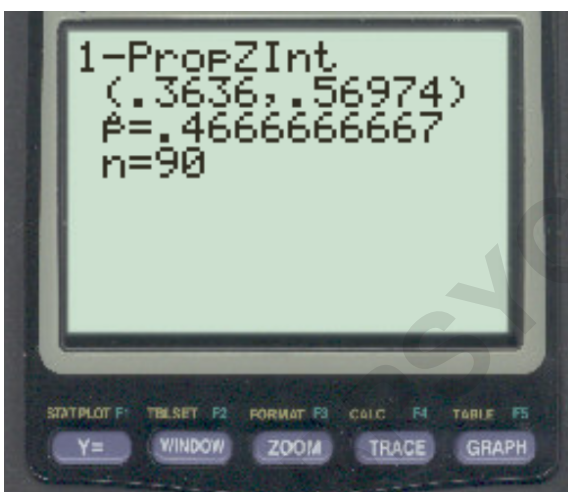
To calculate the confidence interval for the population mean, press **STAT** and then scroll over to the right and press **TESTS**. Then scroll down to press **1-PropZInt** and press **ENTER**.



Next, type in the following information and then press **CALCULATE**:



The confidence interval turns out to be (.3636, .56974):



The margin of error would be equal to half the width of this confidence interval, which would be:

Margin of error:  $(.56974 - .3636) / 2 = .10307$