

BASIC USES OF THE TI-83/TI-84

There are many more useful features than introduced below – see the guidebook that comes with the calculator. For reference, following is a listing of the basic uses with which all students should be familiar. However, always remember that the calculator is only a tool, that it will find minimal use in the multiple-choice section, and that “calculator talk” (calculator syntax) should NOT be used in the free-response section.

Plotting statistical data:

STAT PLOT allows one to show scatterplots, histograms, modified boxplots, and regular boxplots of data stored in lists. Note the use of **TRACE** with the various plots.

Numerical statistical data:

1-Var Stats gives the mean, standard deviation, and 5-number summary of a list of data.

Binomial probabilities:

binompdf (n, p, x) gives the probability of exactly x successes in n trials where p is the probability of success on a single trial.

binomcdf (n, p, x) gives the cumulative probability of x or fewer successes in n trials where p is the probability of success on a single trial.

Geometric probabilities:

geometpdf (p, x) gives the probability that the first success occurs on the x -th trial, where p is the probability of success on a single trial.

geometcdf (p, x) gives the cumulative probability that the first success occurs on or before the x -th trial, where p the probability of success on a single trial.

The normal distribution:

normalcdf (lowerbound, upperbound, μ, σ) gives the probability that a score is between the two bounds for the designated mean μ and standard deviation σ . The defaults are $\mu = 0$ and $\sigma = 1$.

InvNorm (area, μ, σ) gives the score associated with an area (probability) to the left of the score for the designated mean μ and standard deviation σ . The defaults are $\mu = 0$ and $\sigma = 1$.

The t -distribution:

tcdf (lowerbound, upperbound, df) gives the probability a score is between the two bounds for the specified df (degrees of freedom).

invT(area, df) gives the t -score associated with an area (probability) to the left of the score under the student t -probability function for the specified df (degrees of freedom). [Note: this is available on the new operating system for the TI-84+.]

The chi-square distribution:

χ^2 cdf (lowerbound, upperbound, df) gives the probability a score is between the two bounds for the specified df (degrees of freedom).

χ^2 **GOF-Test** is a chi-square goodness-of-fit test to confirm whether sample data conforms to a specified distribution. [Note: this is available on the new operating system for the TI-84+.]

Linear regression and correlation:

LinReg (ax + b) fits the equation $y = ax + b$ to the data in lists L1 and L2 using a least-squares fit. When **DiagnosticOn** is set, the values for r^2 and r are also displayed.

Confidence intervals:

For proportions—

1-PropZInt gives a confidence interval for a proportion of successes.

2-PropZInt gives a confidence interval for the difference between the proportion of successes in two populations.

For means—

TInterval gives a confidence interval for a population mean (use the t -distribution because population variances are never really known).

2-SampTInt gives a confidence interval for the difference between two population means.

Hypothesis tests:

For proportions—

1-PropZTest

2-PropZTest compares the proportion of successes from two populations (making use of the pooled sample proportion).

For means—

T-Test

2-SampTTest

For chi-square test for association—

χ^2 -**Test** gives the χ^2 -value and P -value for the null hypothesis H_0 : no association between row and column variables, and the alternative hypothesis H_a : the variables are related. The observed counts must first be entered into a matrix.

For linear regression—

LinRegTTest calculates a linear regression and performs a t -test on the null hypothesis $H_0: \beta = 0$ ($H_0: \rho = 0$). The regression equation is stored in **RegEQ** (under **VARS Statistics EQ**) and the list of residuals is stored in **RESID** (under **LIST NAMES**).

Catalog help:

To activate Catalog Help, press APPS, choose CtlgHelp, and press ENTER. Then, for example, if you press 2nd, DISTR, arrow down to normalcdf, and press +, you are prompted to insert (lowerbound, upperbound, $[\mu, \sigma]$), that is, to insert the bounds and, optionally, the mean and SD.