Analysis commands carry out mathematical and statistical analyses such as fitting, transformations, statistical tests, and smoothing. Examples of such commands include FIT, LET, and SMOOTH. The commands in this category are:

**Data and function transformations**
- **LET** Define variables and parameters, transform data, calculate statistics, roots, derivatives, integrals and more.
- **LET FUNCTION** Define and operate on functions.

**Fitting and smoothing**
- **EXACT ... RATIONAL FIT** Perform an exact rational function fit.
- **... FIT** Perform a least squares linear or nonlinear fit.
- **LOWESS SMOOTH** Perform a univariate locally weighted least squares smoothing.
- **... PRE-FIT** Perform a pre-fit analysis for starting values.
- **... SMOOTH** Perform a least squares, moving average, or robust (based on moving medians) smoothing of equi-spaced data.
- **... SPLINE FIT** Perform a spline fit.

**Experiment design and Analysis of Variance**
- **ANOV A** Perform an analysis of variance.
- **DEX PHD** Compute the principle Hessian directions for a Yates analysis.
- **MEDIAN POLISH** Perform a robust analysis of variance.
- **YATES ANALYSIS** Perform a Yates analysis.

**Statistical summaries and tests**
- **BARTLET TEST** Carry out a k-sample Bartlett test for the homogeneity of variance across samples.
- **CHI-SQUARE TEST** Carry out a 1-sample chi-square test for the standard deviation equal to a specified value.
- **CONFIDENCE LIMITS** Compute confidence limits for the mean.
- **CROSS TABULATE** Tabulate counts, means, standard deviations, ranges, or compute the Chi-square test of independence for data grouped by two variables.
- **F TEST** Carry out a 2-sample F test for the equality of the standard deviations.
- **RUNS** Carry out a runs analysis.
- **SUMMARY** Compute summary statistics.
- **T TEST** Carry out 1- or 2-sample t test for the mean.
Analysis Commands

TABULATE

Tabulate counts, means, standard deviations, and ranges of grouped data.

Quality Control

CAPABILITY ANALYSIS

Generate a table of capability analysis statistics.

The ... in some of the commands indicates user-defined options for the command, as in:

LINEAR SPLINE FIT, CUBIC SPLINE FIT, etc.
LINEAR SMOOTH, CUBIC SMOOTH, ROBUST SMOOTH, etc.
EXACT 1/1 RATIONAL FIT, EXACT 2/3 RATIONAL FIT, etc.

Many mathematical, statistical, and matrix capabilities are available as subcommands under the LET command. The individual subcommands available under LET are documented in Volume II of the DATAPLOT Reference Manual.