

Addendum 1

Programs in the User's Guide

This is a brief description of the programs presented in the User's Guide. The programs are listed by Chapter and contained in directories named after the chapter number, e.g., programs in Chapter 7 are contained in directory 'C07', those in Chapter 12, in directory 'C12', etc.

Chapters 1 through 6

No programs included.

Chapter 7

Two directories containing programs are listed. These are the directories TRIANG and POLAR.

Directory TRIANG

- Press soft menu key INFOR to get information on the operation of the program.
- Press soft menu key TRISO to activate program. Follow instructions in the User's Guide for an example.

Directory POLAR

- Press soft menu key SOLVE to activate program. Follow instructions in the User's Guide.

Chapter 8

No programs included.

Chapter 9

Three programs are presented:

- RXC: convert a Row vector into a Column vector
- CXR: convert a Column vector into a Row vector
- LXV: convert a List into a Vector

See examples in the User's Guide. To convert a vector or matrix (an array) to a list, use the function AXL already defined in the calculator.

Chapter 10

Two programs are presented:

- CRMC: creates a matrix out of a number of lists of the same length, which become columns of the matrix. The program requires also the number of lists that will be incorporated into the matrix.
- CRMR: creates a matrix out of a number of lists of the same length, which become rows of the matrix. The program requires also the number of lists that will be incorporated into the matrix.

See examples in the User's Guide.



Chapter 11

No programs included.

Chapter 12

This directory contains one program called INFORMATION (shown as the soft menu key INFOR) that provides a brief description of the three subdirectories also listed, namely, PL2D, PL3D, and PLSTA:

PL2D: 2D plots (two-dimensional plots)
PL3D: 3D plots (three-dimensional plots)
PLSTA: stat plots (statistical plots)

The contents of the subdirectories are shown below. Rather than programs, the subdirectories contain subdirectories with information corresponding to the different graphics described in Chapter 12. To activate a graph, move to the corresponding subdirectory, then activate the corresponding PLOT WINDOW by using „  (press them simultaneously if working in RPN mode). Within the PLOT WINDOW, press  DRAW to produce the graph.

Subdirectory PL2D

This subdirectory contains the following subdirectories. The subdirectory name is given in 2zfull, while the characters that show in the soft menu keys are shown in parentheses:

- FUNCs (F): Function graph.
- POLARs (P): Polar graph, change angular measure to radians.
- CONICs (C): Conic section graph.
- PARAMs (P): Parametric graph.
- DIFEQs (D): Differential equation graph.
- TRUTHs (T): Truth graph.

Subdirectory PL3D

This subdirectory contains the following subdirectories:

- SLOPEFIELDs (S): slope field graph.
- FAST3Ds (F): fast three-dimensional graph.
- WIREFRAMEs (W): three-dimensional wire frame graph.
- PsCONTOURs (P): contour plot.
- YsliceS (Y): vertical slice plot.
- GRIDMAPs (G): grid map graph.

Subdirectory PLSTA

This subdirectory contains the following subdirectories:

- BARPLOTs (B): bar plot graph.
- SCATTERs (S): scatter plot graph.

Chapters 13 and 14

No programs included.

Chapter 15

Program GRADIENT is the only program listed in this Chapter. See example in the User's Guide to understand its operation.

Chapter 16

No programs included, although some are used to produce Fourier series and to produce data for Fast Fourier transform. These programs are explained in detail in Chapter 16 in the User's Guide.

Chapter 17

This Chapter includes one program (RLST) and three directories (DFUN, CFUN, UTPEQ). Program RLST produces a list of random numbers given a positive integer number. See Chapter 17 for instructions. The directories are described next.

Directory DFUN

Directory DFUN (Discrete FUNctions) contains the following probability functions:

- pmfb: probability mass function for the binomial distribution.
- cdfb: cumulative distribution function for the binomial distribution.
- pmfp: probability mass function for the Poisson distribution.
- cdff: cumulative distribution function for the Poisson distribution.

See Chapter 17 for definition and operation of these functions.

Directory CFUN

Directory CFUN (Continuous FUNctions) contains the following variables and probability functions:

α, β : Parameters for the functions

gpdf: probability density function for the gamma distribution.

gcdf: cumulative distribution function for the gamma distribution.

β pdf: probability density function for the beta distribution.

β cdf: cumulative distribution function for the beta distribution.

epdf: probability density function for the exponential distribution.

ecdf: cumulative distribution function for the exponential distribution.

Wpdf: probability density function for the Weibull distribution.

Wcdf: cumulative distribution function for the Weibull distribution.

IERR: parameter for numerical integration.

See Chapter 17 for definition and operation of these functions.

Directory UTPEQ

Directory UTPEQ contains the following equations and variables for calculating cumulative distribution functions or their inverses:

EQ: Generic EQ variable for numerical solutions.
EQN: Equation for the normal distribution.
EQT: Equation for the Student's t distribution.
EQC: Equation for the Chi-square distribution.
EQF: Equation for the F distribution.
 $p, \mu, \sigma^2, x, v, t, vN, vD, F$: Variables used in the equations.

To solve for a particular distribution, store the corresponding equation (EQN, EQT, EQC, or EQF) into EQ, and activate the numerical solver (, $\overline{\text{I}}$ OK). See examples in Chapter 17.

Chapter 18

Chapter 18 contains the following programs:

- MED: to determine the median of a given column in the current ΣDAT matrix. Provide the column number as input.
- CFREQ: to calculate cumulative frequency of a column vector. Provide the column vector, representing frequency counts, as input.
- %TILE: to calculate the percentile of a list of data values. Provide the percentile value (a number between 0 and 1) and list of values as input.

See examples in Chapter 18 for the application of these programs. The directory MPFIT (Multiple linear and Polynomial FITting) is also included. The description of this directory follows.

Directory MPFIT

This directory contains the following variables and programs:

- xx, yy: data lists representing x and y values for a polynomial fitting.
- MTREG: Multiple REGression program.
- POLY: POLYnomial regression program.
- POLYR: POLYnomial regression including calculation of the correlation coefficient, r.

See Chapter 18 for definitions and examples in the use of these programs.

Chapters 19 and 20

No programs included.

Chapter 21

This chapter includes the following directories. The contents of the directories are shown next. The programs are described in detail in Chapter 21 in the order shown below.

Directory LISTS

This directory includes the following programs:

- LISC, CRLST, CLIST: programs for generating lists of numbers.

Directory PTRICKS

This directory includes the following programs:

- FUNCa: function with input string.
- INPTa, INPT1, INPT2, INPT3: input strings for 1, 2, 3 variables
- p, pVT, pVTn, pVTnt, pVTnM, pVTna, pVTnu, pVTnn: several versions for the ideal gas law program.

Directory INBX

This directory includes the following programs:

- INFP1, INFP2, INFP3: programs that use input boxes.

Directory CHBX

This directory includes the following programs:

- CHP1, CHP2: programs that use choose boxes.

Directory BRANCH

This directory includes the following programs:

- f1, f2, f3, f3a: multiple-valued functions using branching statements.

Directory LOOPS

This directory includes the following programs:

- S1, S2, S3, S4: different versions of a program that calculates a summation.
- GLIST, GLIS2, GLIS3, GLIS4: different versions of a program that generates a list.

Chapter 22

This chapter includes the following directories. The contents of the directories are listed next. Detailed descriptions of the programs are shown in Chapter 22 of the User's Guide.

Directory PLOTS

This directory includes the following variables and programs:

- PPAR, EQ: variables needed to produce plots.
- PLOT1, PLOT2, PLOT3, EXP1 (Example 1): different plot programs.
- Subdirectory XSECT: this subdirectory includes data in variables XYD1 and XYD2 and program XSECT to draw a cross-section of a natural river. To use it, press XYD1 or XYD2 to list the data in the screen, then enter a value of the water depth, and press XSECT. See examples in Chapter 22 of the User's Guide. The subdirectory contains other subprograms that are used by XSECT.

Directory ANIM

This directory contains the following variables and programs:

- ANIM1, ANIM2, ANIM3, EXP2 (Example 2): programs for animating graphics. The graphs generated with ANIM1, and used by ANIM2 and ANIM3, must be contained in variable called WLIST. Follow the instructions in the User's Guide to generate WLIST.

The calculator may take some time to produce the animations. Be patient.

Directory GROBs

This directory contains the following programs and variables.

- GROB1: program to include a GROB (Graphic Object) in a plot.
- EQ, PPAR: variables needed to produce the graph.

Directory MOHRC

This directory contains the following programs and variables:

- MOHRC: program to draw Mohr's circle. This program uses an input string.
- PRNST: program to calculate the principal stresses in the two-dimensional stress state described by a Mohr's circle.
- EQ, PPAR: parameters needed for the plot.
- PTTL, α AXS, PLPNT, α LBL, PTS, DDIAM, PCIRC, DAXES, ATN2, CC&r, and INDAT: subprograms needed to run MOHRC.
- INDA2: subprogram that produces an input form (rather than an input string) to input data into the program MOHRC. To include this program, rather than INDAT, replace the contents of INDAT with those of INDA2.

See examples of operation of these programs in Chapter 22.

Chapters 23 through 26, and Appendices A through M

No programs included.

Subdirectories included

The subdirectories included are, therefore, C07, C08, C10, C12 , C15, C17, C18, C21, and C22. You can get them either in ASCII (text) or Binary format.