TRICDF

PURPOSE

Compute the triangular cumulative distribution function.

DESCRIPTION

The standard triangular probability density function is:

$$f(x) = \frac{x+1}{c+1} \qquad -1 \le x \le c \qquad \textbf{(EQ 8-318)}$$

$$f(x) = \frac{1-x}{1-c} \qquad c < x \le 1 \qquad \textbf{(EQ 8-319)}$$

where c is the shape parameter. The standard triangular cumulative distribution function is:

$$F(x) = \frac{(x+1)^2}{2(c+1)} \qquad -1 \le x \le c \qquad \textbf{(EQ 8-320)}$$

$$F(x) = 1 - \frac{(1-x)^2}{2(1-c)} \qquad c < x \le 1 \qquad \textbf{(EQ 8-321)}$$

SYNTAX

LET \<y2\> = TRICDF(\<y1\>,\<c\>)   \<SUBSET/EXCEPT/FOR qualification\>

where \<y1\> is a variable, number, or parameter containing values in the interval (-1,1);

    \<c\> is a number, parameter, or variable containing values in the interval (-1,1);

    \<y2\> is a variable or a parameter (depending on what \<x\> and \<c\> are) where the computed pdf value is stored;

and where the \<SUBSET/EXCEPT/FOR qualification\> is optional.

EXAMPLES

LET A = TRICDF(0.5,0)

LET Y = TRICDF(X1,0.5)

NOTE

The general form of the triangular cumulative distribution function is:

$$F(x) = \frac{(x-a)^2}{(b-a)(c-a)} \qquad a \le x \le c \qquad \textbf{(EQ 8-322)}$$

$$F(x) = 1 - \frac{(b-x)^2}{(b-a)(b-c)} \qquad c < x \le b \qquad \textbf{(EQ 8-323)}$$

where a is the location parameter and b is the upper limit. The scale parameter is (b-a)/2. Some references define the standard distribution with a equal 0 and b equal 1 (DATAPLOT uses a=-1 and b=1). See topic (3) under the General considerations section at the beginning of this chapter for a discussion of generating cdf values for the general form of the distribution.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

TRIPDF	=	Compute the triangular probability density function.
TRIPPF	=	Compute the triangular percent point function.
UNICDF	=	Compute the uniform cumulative distribution function.
UNIPDF	=	Compute the uniform probability density function.
UNIPPF	=	Compute the uniform percent point function.

UNISF	=	Compute the uniform sparsity function.
SEMPPF	=	Compute the semi-circular percent point function.
NORCDF	=	Compute the normal cumulative distribution function.
NORPDF	=	Compute the normal probability density function.
NORPPF	=	Compute the normal percent point function.

REFERENCE
"Statistical Distributions," 2nd Ed., Evans, Hastings, and Peacock, Wiley and Sons (chapter 39).

APPLICATIONS
Data Analysis

IMPLEMENTATION DATE
94/9

PROGRAM
TITLE TRIANGULAR DISTRIBUTIONS
X1LABEL X
Y1LABEL PROBABILITY
PLOT TRICDF(X,0) FOR X = -1 .1 1 AND
PLOT TRICDF(X,0.5) FOR X = -1 .1 1 AND
PLOT TRICDF(X,-0.5) FOR X = -1 .1 1