

HFCCDF**PURPOSE**

Compute the standard half-Cauchy cumulative distribution function.

DESCRIPTION

The standard half-Cauchy distribution has the following probability density function:

$$f(x) = \frac{2}{\pi(1+x^2)} \quad x \geq 0 \quad (\text{EQ 8-191})$$

The cumulative distribution is calculated from the Cauchy distribution by: $F(x) = 2*\text{CAUCDF}(x) - 1$ where CAUCDF is the cumulative distribution function of the standard Cauchy distribution.

SYNTAX

LET <y> = HFCCDF(<x>) <SUBSET/EXCEPT/FOR qualification>

where <x> is a non-negative variable, number, or parameter;

<y> is a variable or a parameter (depending on what <x> is) where the computed Cauchy cdf value is stored;

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

EXAMPLES

LET A = HFCCDF(3)

LET X2 = HFCCDF(X1)

NOTE

The general form of the half-Cauchy probability density function is:

$$f(x) = \left(\frac{1}{s}\right) \frac{2}{\pi \left(1 + \left(\frac{x-t}{s}\right)^2\right)} \quad x \geq \mu \quad (\text{EQ 8-192})$$

where μ is a location parameter and σ is a scale parameter.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

HFCPDF	=	Compute the Cauchy probability density function.
HFCPPF	=	Compute the Cauchy percent point function.
CAUCDF	=	Compute the Cauchy cumulative distribution function.
CAUPDF	=	Compute the Cauchy probability density function.
CAUPPF	=	Compute the Cauchy percent point function.
NORCDF	=	Compute the normal cumulative distribution function.
NORPDF	=	Compute the normal probability density function.
NORPPF	=	Compute the normal percent point function.
HFNCDF	=	Compute the half-normal cumulative distribution function.
HFNPDF	=	Compute the half-normal probability density function.
HFNPPF	=	Compute the half-normal percent point function.

REFERENCE

“Continuous Univariate Distributions - Vol. I,” 2nd. ed., Johnson, Kotz, and Balakrishnan, Wiley and Sons, 1994 (page 328).

APPLICATIONS

Data Analysis

IMPLEMENTATION DATE

95/10

PROGRAM

TITLE AUTOMATIC

PLOT HFCCDF(X) FOR X = 0 0.01 10

