COSPDF

PURPOSE

Compute the cosine probability density function.

DESCRIPTION

The cosine distribution has the following probability density function:

$$f(x) = \frac{1 + \cos(x)}{2\pi} \qquad -\pi \leq x \leq \pi \qquad \textbf{(EQ Aux-78)}$$

SYNTAX

LET <y2> = COSPDF(<y1>) <SUBSET/EXCEPT/FOR qualification>

where <y1> is a number, parameter, or variable;

<y2> is a variable or a parameter (depending on what <y1> is) where the computed cosine pdf value is stored;

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

EXAMPLES

LET A = COSPDF(3)

LET A = COSPDF(A1)

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

COSCDF	=	Compute the cosine cumulative distribution function.
COSPPF	=	Compute the cosine percent point function.
NORCDF	=	Compute the normal cumulative distribution function.
NORPDF	=	Compute the normal probability density function.
NORPPF	=	Compute the normal percent point function.
UNICDF	=	Compute the uniform cumulative distribution function.
UNIPDF	=	Compute the uniform probability density function.
UNIPPF	=	Compute the uniform percent point function.

REFERENCE

“Some Useful Alternatives to the Normal Distribution,” Chew, The American Statistician, June, 1968.

APPLICATIONS

Data Analysis

IMPLEMENTATION DATE

95/4

PROGRAM

```
TITLE AUTOMATIC
XLIMITS -3 3
XTIC OFFSET 0.2 0.2
LET LOWER = -PI
LET UPPER = PI
PLOT COSPDF(X) FOR X = LOWER 0.01 UPPER
```