NORPDF

PURPOSE

Compute the standard normal (i.e, mean=0, sd=1) probability density function.

DESCRIPTION

The standard form of the normal probability density function is:

$$f(x) = \left(\frac{1}{\sqrt{2\pi}}\right)e^{-\frac{x^2}{2}}$$

(EQ 8-287)

The input value can be any real number.

SYNTAX

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

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

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

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

EXAMPLES

LET A = NORPDF(3)
LET Y = NORPDF(X1)

NOTE

The general form of the normal distribution has the following probability density function:

$$f(x) = \left(\frac{1}{\sigma\sqrt{2\pi}}\right)e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$$

(EQ 8-288)

where μ is the mean or location parameter and σ is the standard deviation or scale parameter. See topic (3) under the General considerations section at the beginning of this chapter for a discussion of generating pdf values for the general form of the distribution.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

NORCDF	=	Compute the normal cumulative distribution function.
NORPPF	=	Compute the normal percent point function.
NORSF	=	Compute the normal sparsity function.
HFNPDF	=	Compute the half-normal cumulative distribution function.
HFNPDF	=	Compute the half-normal probability density function.
HFNPPF	=	Compute the half-normal percent point function.
LGNPDF	=	Compute the lognormal cumulative distribution function.
LGNPDF	=	Compute the lognormal probability density function.
LGNPPF	=	Compute the lognormal percent point function.
CHSCDF	=	Compute the chi-square cumulative distribution function.
CHSPDF	=	Compute the chi-square probability density function.
CHSPPF	=	Compute the chi-square percent point function.
FCDF	=	Compute the F cumulative distribution function.
FPDF	=	Compute the F probability density function.
FPPF	=	Compute the F percent point function.
TCDF	=	Compute the T cumulative distribution function.
TPDF	=	Compute the T probability density function.

TPPF	=	Compute the T percent point function.
WEICDF	=	Compute the Weibull cumulative distribution function.
WEIPDF	=	Compute the Weibull probability density function.
WEIPPF	=	Compute the Weibull percent point function.

REFERENCE

"Continuous Univariate Distributions - 1," Johnson and Kotz, Houghton Mifflin, 1970 (chapter 13).

"Handbook of Mathematical Functions, Applied Mathematics Series, Vol. 55," Abramowitz and Stegum, National Bureau of Standards, 1964 (page 946-947).

APPLICATIONS

Data Analysis, Hypothesis Testing

IMPLEMENTATION DATE

Pre-1987

PROGRAM

TITLE AUTOMATIC
Y1LABEL PROBABILITY
X1LABEL X
YLIMITS 0 0.4
MAJOR YTIC NUMBER 5
MINOR YTIC NUMBER 1
YTIC DECIMAL 1
XLIMITS -3 3
XTIC OFFSET 0.6 0.6
PLOT NORPDF(X) FOR X = -3.5 0.01 3.5