EXPPDF

PURPOSE
Compute the standard form of the exponential probability density function.

DESCRIPTION
The standard form of the exponential probability density function is:

$$f(x) = e^{-x} \qquad \text{for } x \geq 0 \qquad \text{(EQ 8-197)}$$

SYNTAX
LET <y2> = EXPPDF(<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 exponential pdf value is saved;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES
LET A = EXPPDF(3)
LET Y = EXPPDF(X1)

NOTE
The general form of the exponential probability density function is:

$$f(x) = \left(\frac{1}{\beta}\right)e^{-\left(\frac{x-\mu}{\beta}\right)} \qquad \text{for } x \geq \mu \qquad \text{(EQ 8-198)}$$

The parameter μ is a location parameter and the parameter β is a 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
EXPCDF	=	Compute the exponential cumulative distribution function.
EXPPPF	=	Compute the exponential percent point function.
DEXCDF	=	Compute the double exponential cumulative distribution function.
DEXPDF	=	Compute the double exponential probability density function.
DEXPPF	=	Compute the double exponential percent point function.
WEICDF	=	Compute the Weibull cumulative distribution function.
WEIPDF	=	Compute the Weibull probability density function.
WEIPPF	=	Compute the Weibull percent point function.
EV1CDF	=	Compute the extreme value type I cumulative distribution function.
EV1PDF	=	Compute the extreme value type I probability density function.
EV1PPF	=	Compute the extreme value type I percent point function.

REFERENCE
"Continuous Univariate Distributions," Johnson and Kotz, Houghton Mifflin, 1970 (chapter 18).

"Handbook of Mathematical Functions, Applied Mathematics Series, Vol. 55," Abramowitz and Stegum, National Bureau of Standards, 1964 (page 930).

"Statistical Distributions," 2nd. Edition, Evans, Hastings, and Peacock, John Wiley and Sons (chapter 13).

APPLICATIONS
Reliability Analysis

IMPLEMENTATION DATE
     94/4

PROGRAM
     MAJOR YTIC NUMBER 6
     MINOR YTIC NUMBER 1
     YTIC DECIMAL 1
     XLIMITS 0 4
     XTIC OFFSET 0.2 0.6
     TITLE AUTOMATIC
     X1LABEL X
     Y1LABEL PROBABILITY
     PLOT EXPPDF(X) FOR X = 0.01 0.01 4.5