DLGPDF

PURPOSE
Compute the discrete logarithmic series probability density function.

DESCRIPTION
The discrete logarithmic distribution has the following probability density function:

$$p(x, \theta) \equiv \frac{-\theta^x}{\log(1-c)x} \qquad\qquad x = 1, 2, ... \qquad\qquad \textbf{(EQ Aux-96)}$$

where θ is a shape parameter in the interval (0,1).

SYNTAX
LET <y2> = DLGPDF(<y1>,<theta>)   <SUBSET/EXCEPT/FOR qualification>
where <y1> is a positive integer variable, number, or parameter;
    <y2> is a variable or a parameter (depending on what <y1> is) where the computed logarithmic series pdf value is stored;
    <theta> is a number, parameter, or variable in the range (0,1) that specifies the shape parameter;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES
LET A = DLGPDF(3,0.5)
LET X2 = DLGPDF(X1,0.3)

DEFAULT
None

SYNONYMS
None

RELATED COMMANDS
DLGCDF	=	Compute the logarithmic series cumulative distribution function.
DLGPPF	=	Compute the logarithmic series percent point function.
WARCDF	=	Compute the Waring cumulative distribution function.
WARPDF	=	Compute the Waring probability density function.
WARPPF	=	Compute the Waring percent point function.
POICDF	=	Compute the Poisson cumulative distribution function.
POIPDF	=	Compute the Poisson probability density function.
POIPPF	=	Compute the Poisson percent point function.
BINCDF	=	Compute the binomial cumulative distribution function.
BINPDF	=	Compute the binomial probability density function.
BINPPF	=	Compute the binomial percent point function.
NBCDF	=	Compute the negative binomial cumulative distribution function.
NBPDF	=	Compute the negative binomial probability density function.
NBPPF	=	Compute the negative binomial percent point function.
GEOCDF	=	Compute the geometric cumulative distribution function.
GEOPDF	=	Compute the geometric probability density function.
GEOPPF	=	Compute the geometric percent point function.

REFERENCE
"Discrete Univariate Distributions," 2nd. ed., Johnson, Kotz, and Kemp, John Wiley & Sons, 1994 (chapter 7).

"Statistical Distributions," 2nd. ed., Evans, Hastings, and Peacock, John Wiley and Sons, 1993 (chapter 23).

APPLICATIONS
Data Analysis

IMPLEMENTATION DATE
95/4

PROGRAM
        LET Z = DATA ...
            0.1 0.3 0.5 0.7 0.8 0.85 0.90 0.95 0.99 0.995 0.999 0.9999
        TITLE AUTOMATIC
        XTIC OFFSET 0.5 0.5
        SPIKE ON
        LINE BLANK
        MULTIPLOT CORNER COORDINATES 0 0 100 100
        MULTIPLOT 4 3
        LOOP FOR K = 1 1 12
            LET THETA = Z(K)
            X1LABEL THETA = ^THETA
            PLOT DLGPDF(X,THETA) FOR X = 1 1 50
        END OF LOOP
        END OF MULTIPLOT