BRAPDF

PURPOSE

Compute the Bradford probability density function.

DESCRIPTION

The Bradford probability density function is:

$$f(x, \beta) = \frac{\beta}{\log(1 + \beta)(1 + \beta x)} \qquad 0 < x < 1, \beta > -1 \qquad \textbf{(EQ Aux-48)}$$

where β is the shape parameter.

SYNTAX

LET <y> = BRAPDF(<x>,<beta>) <SUBSET/EXCEPT/FOR qualification>

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

<y> is a variable or a parameter (depending on what <x> is) where the computed Bradford pdf value is saved;

<beta> is a number, parameter, or variable that specifies the shape parameter;

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

EXAMPLES

LET A = BRAPDF(0.5,1.5)

LET X2 = BRAPDF(X1,BETA)

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

BRACDF	=	Compute the Bradford cumulative distribution function.
BRAPPF	=	Compute the Bradford percent point function.
WARCDF	=	Compute the Waring cumulative distribution function.
WARPDF	=	Compute the Waring probability density function.
WARPPF	=	Compute the Waring percent point function.
PARCDF	=	Compute the Pareto cumulative distribution function.
PARPDF	=	Compute the Pareto probability density function.
PARPPF	=	Compute the Pareto percent point function.
BETCDF	=	Compute the beta cumulative distribution function.
BETPDF	=	Compute the beta probability density function.
BETPPF	=	Compute the beta percent point function.

REFERENCE

"Continuous Univariate Distributions--Vol. 2," 2nd. Ed., Johnson, Kotz, and Balakrishnan, John Wiley and Sons, 1994 (page 347).

APPLICATIONS

Approximation to the Zipf or Yule discrete distributions

IMPLEMENTATION DATE

96/2

PROGRAM

```
MULTIPLOT 2 2; MULTIPLOT CORNER COORDINATES 0 0 100 100
TITLE AUTOMATIC
LET B = -0.5
X1LABEL  BETA = ^B
PLOT BRAPDF(X,B) FOR X = 0.01 0.01 0.99
LET B = 0.5
X1LABEL  BETA = ^B
PLOT BRAPDF(X,B) FOR X = 0.01 0.01 0.99
LET B = 1.0
X1LABEL  BETA = ^B
PLOT BRAPDF(X,B) FOR X = 0.01 0.01 0.99
LET B = 2.0
X1LABEL  BETA = ^B
PLOT BRAPDF(X,B) FOR X = 0.01 0.01 0.99
END OF MULTIPLOT
```