

WALPPF**PURPOSE**

Compute the Wald percent point function with shape parameter γ .

DESCRIPTION

The Wald distribution is the inverse Gaussian distribution with the location parameter set to 1. See the documentation for the IGPPF command in this chapter for the definition of the inverse Gaussian distribution (just set μ to 1 in the formulas). Since DATAPLOT calculates the standard form of the inverse Gaussian distribution, the WALPPF and IGPPF commands are identical in DATAPLOT.

SYNTAX

LET <y2> = WALPPF(<y1>,<gamma>) <SUBSET/EXCEPT/FOR qualification>
 where <y1> is a variable, a number, or a parameter containing values in the range 0 to 1;
 <y2> is a variable or a parameter (depending on what <y1> is) where the computed Wald ppf value is stored;
 <gamma> is a positive number or parameter that specifies the shape parameter;
 and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

```
LET A = WALPPF(0.9,10)
LET Y = WALPPF(P,10)
```

DEFAULT

None

SYNONYMS

IGPPF

RELATED COMMANDS

WALCDF	=	Compute the Wald cumulative distribution function.
WALPDF	=	Compute the Wald probability density function.
IGPDF	=	Compute the inverse Gaussian probability density function.
IGPPF	=	Compute the inverse Gaussian percent point function.
IGCDF	=	Compute the inverse Gaussian cumulative distribution function.
RIGCDF	=	Compute the reciprocal inverse Gaussian cumulative distribution function.
RIGPDF	=	Compute the reciprocal inverse Gaussian probability density function.
RIGPPF	=	Compute the reciprocal inverse Gaussian percent point function.
FLPDF	=	Compute the fatigue-life probability density function.
FLPPF	=	Compute the fatigue-life percent point function.
FLCDF	=	Compute the fatigue-life cumulative distribution function.
NORCDF	=	Compute the normal cumulative distribution function.
NORPDF	=	Compute the normal probability density function.
NORPPF	=	Compute the normal 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 15).

“Statistical Distributions,” 2nd Ed., Evans, Hastings, and Peacock, Wiley and Sons, 1993 (chapter 21).

APPLICATIONS

Reliability Analysis

IMPLEMENTATION DATE

90/5 (definition was modified 95/1 to be consistent with Johnson and Kotz)

PROGRAM

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TITLE WALPPF FOR VARIOUS VALUES OF GAMMA
YLABEL X
XLABEL PROBABILITY
SEGMENT 1 COORDINATES 16 88 21 88; SEGMENT 1 PATTERN SOLID
SEGMENT 2 COORDINATES 16 84 21 84; SEGMENT 2 PATTERN DASH
SEGMENT 3 COORDINATES 16 80 21 80; SEGMENT 3 PATTERN DOT
SEGMENT 4 COORDINATES 16 76 21 76; SEGMENT 4 PATTERN DA2
LEGEND 1 GAMMA = 1; LEGEND 1 COORDINATES 22 87
LEGEND 2 GAMMA = 2; LEGEND 2 COORDINATES 22 83
LEGEND 3 GAMMA = 5; LEGEND 3 COORDINATES 22 79
LEGEND 4 GAMMA = .5; LEGEND 4 COORDINATES 22 75
XLIMITS 0 1
MAJOR XTIC NUMBER 6
MINOR XTIC NUMBER 1
XTIC DECIMAL 1
LINES SOLID DASH DOT DASH2
YLIMITS 0 4
MAJOR YTIC MARK NUMBER 5
YTIC OFFSET 0 0.2
PLOT WALPPF(X,1) FOR X = 0.01 .01 0.99 AND
PLOT WALPPF(X,2) FOR X = 0.01 .01 0.99 AND
PLOT WALPPF(X,5) FOR X = 0.01 .01 0.99 AND
PLOT WALPPF(X,0.5) FOR X = 0.01 .01 0.99

```

