

TRICOMI**PURPOSE**

Compute Tricomi's form of the incomplete gamma function.

DESCRIPTION

Tricomi's form of the incomplete gamma function is defined as:

$$P(x, a) = \frac{\int_0^x e^{-t} t^{a-1} dt}{\Gamma(a) x^a} \quad (x \geq 0) \quad \text{(EQ 6-100)}$$

where Γ is the gamma function and a is a positive shape parameter.

SYNTAX

LET <y2> = TRICOMI(<y1>,<a>) <SUBSET/EXCEPT/FOR qualification>

where <y1> is a non-negative number, variable or parameter;

<a> is a positive number, parameter, or variable;

<y2> is a variable or a parameter (depending on what <y1> and <a> are) where the computed values are stored;

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

EXAMPLES

LET A = TRICOMI(2.3,1)

LET A = TRICOMI(X,A1)

LET X2 = TRICOMI(X1,4.2)

NOTE

DATAPLOT uses the routine DGAMIT from the SLATEC Common Mathematical Library to compute this function. SLATEC is a large set of high quality, portable, public domain Fortran routines for various mathematical capabilities maintained by seven federal laboratories.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

GAMMAI	=	Compute the incomplete gamma function.
GAMMAR	=	Compute the reciprocal gamma function.
GAMMA	=	Compute the gamma function.
LOGGAMMA	=	Compute the log (to base e) gamma function.
GAMMAIP	=	Compute the incomplete gamma function ratio .
GAMMAIC	=	Compute the complementary incomplete Gamma function.
DIGAMMA	=	Compute the digamma function.

REFERENCE

"Handbook of Mathematical Functions, Applied Mathematics Series, Vol. 55," Abramowitz and Stegun, National Bureau of Standards, 1964 (chapter 6, pp. 260-261).

APPLICATIONS

Special Functions

IMPLEMENTATION DATE

94/9

PROGRAM

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TITLE TRICOMI'S INCOMPLETE GAMMA FUNCTION
LINE DOT SOLID DASH DASH
PLOT TRICOMI(X,0.5) FOR X = 0.01 0.01 10 AND
PLOT TRICOMI(X,1) FOR X = 0.01 0.01 10 AND
PLOT TRICOMI(X,3) FOR X = 0.01 0.01 10 AND
PLOT TRICOMI(X,4) FOR X = 0.01 0.01 10
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