Author(s) : K.S. Kölbig
Submitter :
Language : Fortran
Library: MATHLIB
Submitted: 15.02.1989
Revised: 15.11.1995

Binomial Coefficient

Function subprograms RBINOM and DBINOM calculate the binomial coefficient

$$\binom{x}{k} = \begin{cases} x(x-1)\dots(x-k+1)/k! & (k>0) \\ 1 & (k=0) \\ 0 & (k<0) \end{cases}$$

for real x and integer k. Function subprogram KBINOM calculates the binomial coefficient only for integer $x = n$.

On CDC and Cray computers, the double-precision version DBINOM is not available.

Structure:

FUNCTION subprograms
User Entry Names: RBINOM, DBINOM, KBINOM
Obsolete User Entry Names: BINOM $\equiv$ RBINOM
Files Referenced: Unit 6

Usage:

In any arithmetic expression,

RBINOM(X,K), DBINOM(X,K) or KBINOM(N,K)

has the value of the binomial coefficient. RBINOM is of type REAL, DBINOM is of type DOUBLE PRECISION and X has the same type as the function name. KBINOM, N and K are of type INTEGER.

Restrictions:

Function subprogram KBINOM can compute only binomial coefficients which lie in the integer range of the machine.

Accuracy:

Full machine accuracy.

Error handling:

If the result of KBINOM would lie outside the integer range of the machine, KBINOM is set equal to zero and an error message is printed.

•