

COMPLEX SUBTRACTION**PURPOSE**

Carry out a complex subtraction (element-by-element) of 2 complex variables.

DESCRIPTION

DATAPLOT stores all variables as real. Complex variables are supported as a pair of real variables. That is, the pair Y1,Y2 of real variables can be thought of as the single complex variable $Y1 + i*Y2$ where i is the square root of -1 .

Complex subtraction is performed by subtracting the two real components and subtracting the two complex components. That is, $(a+bi) - (c+di) = (a-c) + (b-d)i$.

SYNTAX

LET <v5> <v6> = COMPLEX SUBTRACTION <v1> <v2> <v3> <v4> <SUBSET/EXCEPT/FOR qualification>

where <v1> and <v2> are the real and imaginary components of the first input variable;

<v3> and <v4> are the real and imaginary components of the second input variable;

<v5> and <v6> are the real and imaginary components of the output variable;

and where the <SUBSET/EXCEPT/FOR qualification> is optional and rarely used in this context.

EXAMPLES

LET Y5 Y6 = COMPLEX SUBTRACTION Y1 Y2 Y3 Y4

LET E F = COMPLEX SUBTRACTION A B C D SUBSET A > 10

LET E F = COMPLEX SUBTRACTION A B C D FOR I = 1 1 20

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

COMPLEX ADDITION	=	Carries out complex addition.
COMPLEX MULTIPLICATION	=	Carries out complex multiplication.
COMPLEX DIVISION	=	Carries out complex division.
COMPLEX EXPONENTIATION	=	Carries out complex exponentiation.
COMPLEX CONJUGATE	=	Computes the complex conjugate.
COMPLEX SQUARE ROOT	=	Computes the complex square root.
COMPLEX ROOTS	=	Computes the complex roots.
POLYNOMIAL SUBTRACTION	=	Carries out a polynomial subtraction.
VECTOR SUBTRACTION	=	Carries out a vector subtraction.
MATRIX SUBTRACTION	=	Carries out a matrix subtraction.

APPLICATIONS

Mathematics

IMPLEMENTATION DATE

87/10

PROGRAM

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READ X1 Y1 X2 Y2
1 2 3 4
3 5 2 1
2 2 4 3
END OF DATA
LET X3 Y3 = COMPLEX SUBTRACTION X1 Y1
WRITE X1 Y1 X2 Y2 X3 Y3

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