

COMPLEX ADDITION**PURPOSE**

Carry out a complex addition (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 addition is performed by adding the two real components and adding the two complex components. That is, $(a+bi) + (c+di) = (a+c) + (b+d)i$.

SYNTAX

LET <v5> <v6> = COMPLEX ADDITION <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 ADDITION Y1 Y2 Y3 Y4

LET Y3R Y3I = COMPLEX ADDITION Y1R Y1I Y2R Y2I

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

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

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

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

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 ADDITION X1 Y1 X2 Y2
SET WRITE DECIMALS 0
WRITE X1 Y1 X2 Y2 X3 Y3

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