CSQRT

PURPOSE

Compute the real or complex component of the square root function for a complex number.

SYNTAX 1

LET <yr> = CSQRT(<xr>,<xc>) <SUBSET/EXCEPT/FOR qualification>
where <xr> is a number, parameter, or variable that specifies the real component of the the complex number;
<xc> is a number, parameter, or variable that specifies the complex component of the the complex number;
<yr> is a variable or a parameter (depending on what <xr> and <xc> are) where the real component of the computed square root value is stored;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

This syntax computes the real componet of the square root of a complex number.

SYNTAX 2

LET <yc> = CSQRT(<xr>,<xc>) <SUBSET/EXCEPT/FOR qualification>
where <xr> is a number, parameter, or variable that specifies the real component of the the complex number;
<xc> is a number, parameter, or variable that specifies the complex component of the the complex number;
<yc> is a variable or a parameter (depending on what <xr> and <xc> are) where the complex component of the computed square root value is stored;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

This syntax computes the complex componet of the square root of a complex number.

EXAMPLES

```
LET AR = CSQRT(14,-2)
LET AC = CSQRTI(14,-2)
LET ZR = CSQRT(XR,XC)
LET ZC = CSQRTI(XR,XC)
```

NOTE

DATAPLOT uses the Fortran intrinsic function CSQRT to compute this function.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

SQRT	=	Compute the square root of a real number.
CABS	=	Compute the absolute value of a complex number.
CCOS	=	Compute the real component of the cosine of a complex number.
CCOSI	=	Compute the complex component of the cosine of a complex number.
CEXP	=	Compute the real component of the exponential of a complex number.
CEXPI	=	Compute the complex component of the exponential of a complex number.
CLOG	=	Compute the real component of the logarithm of a complex number.
CLOGI	=	Compute the complex component of the logarithm of a complex number.
CSIN	=	Compute the real component of the sine of a complex number.
CSINI	=	Compute the complex component of the sine of a complex number.

APPLICATIONS

Elementary functions

IMPLEMENTATION DATE

94/10

PROGRAM

```
X1LABEL SOLID = REAL COMPONENT
X2LABEL DASH = COMPLEX COMPONENT
LINE SOLID DASH
MULTIPLOT 2 2; MULTIPLOT CORNER COORDINATES 0 0 100 100
LET C = 1
TITLE CSQRT, COMPLEX COMPONENT = ^C
PLOT CSQRT(X,C) FOR X = -3 0.01 3 AND
PLOT CSQRTI(X,C) FOR X = -3 .01 3
LET C = -1
TITLE CSQRT, COMPLEX COMPONENT = ^C
PLOT CSQRT(X,C) FOR X = -3 0.01 3 AND
PLOT CSQRTI(X,C) FOR X = -3 .01 3
LET C = 2
TITLE CSQRT, COMPLEX COMPONENT = ^C
PLOT CSQRT(X,C) FOR X = -3 0.01 3 AND
PLOT CSQRTI(X,C) FOR X = -3 .01 3
LET C = -2
TITLE CSQRT, COMPLEX COMPONENT = ^C
PLOT CSQRT(X,C) FOR X = -3 0.01 3 AND
PLOT CSQRTI(X,C) FOR X = -3 .01 3
END OF MULTIPLOT
```