

CABS**PURPOSE**

Compute the absolute value for a complex number.

DESCRIPTION

The absolute value of a complex number is defined to be:

$$|x + iy| = \sqrt{x^2 + y^2} \quad (\text{EQ Aux-51})$$

SYNTAX

LET <y> = CABS(<xr>,<xi>) <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;
 <y> is a variable or a parameter (depending on what <xr> and <xc> are) where the computed absolute value is stored;
 and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

```
LET A = CABS(-2,1)
LET A = CABS(-2,-1)
LET X2 = ABS(XR,XC)
LET X2 = ABS(0,XC)
```

NOTE

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

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

ABS	=	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.
CSQRT	=	Compute the real component of the square root of a complex number.
CSQRTI	=	Compute the complex component of the square root of a complex number.

APPLICATIONS

Elementary function

IMPLEMENTATION DATE

94/10

PROGRAM

```
TITLE AUTOMATIC
YLIMITS 0 12
MULTIPLY 2 2; MULTIPLY CORNER COORDINATES 0 0 100 100
PLOT CABS(XR,2) FOR XR = -5 .1 5
PLOT CABS(XR,10) FOR XR = -5 .1 5
PLOT CABS(2,XC) FOR XC = -5 .1 5
PLOT CABS(10,XC) FOR XC = -5 .1 5
END OF MULTIPLY
```

