**CSIN**

**PURPOSE**
Compute the real or complex component of the sine of a complex number.

**SYNTAX 1**

```
LET <yr> = CSIN(<xr>,<xc>) <SUBSET/EXCEPT/FOR qualification>
```

where `<xr>` is a number, parameter, or variable that specifies the real component of the complex number;

where `<xc>` is a number, parameter, or variable that specifies the complex component of the complex number;

where `<yr>` is a variable or a parameter (depending on what `<xr>` and `<xc>` are) where the real component of the computed sine value is stored;

and where the `<SUBSET/EXCEPT/FOR qualification>` is optional.

This syntax computes the real component of sin of a complex number.

**SYNTAX 2**

```
LET <yc> = CSINI(<xr>,<xc>) <SUBSET/EXCEPT/FOR qualification>
```

where `<xr>` is a number, parameter, or variable that specifies the real component of the complex number;

where `<xc>` is a number, parameter, or variable that specifies the complex component of the complex number;

where `<yc>` is a variable or a parameter (depending on what `<xr>` and `<xc>` are) where the complex component of the computed sine value is stored;

and where the `<SUBSET/EXCEPT/FOR qualification>` is optional.

This syntax computes the complex component of sin of a complex number.

**EXAMPLES**

```
LET AR = CSIN(-2,1)
LET AC = CSIN(-2,1)
LET ZR = CSIN(XR,XC)
LET ZC = CSINI(XR,XC)
```

**NOTE**

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

**DEFAULT**

None

**SYNONYMS**

None

**RELATED COMMANDS**

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<td>SIN</td>
<td>Compute the sine of a real number.</td>
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<tr>
<td>CABS</td>
<td>Compute the absolute value of a complex number.</td>
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<tr>
<td>CCOS</td>
<td>Compute the real component of the cosine of a complex number.</td>
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<tr>
<td>CCOSI</td>
<td>Compute the complex component of the cosine of a complex number.</td>
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<tr>
<td>CEXP</td>
<td>Compute the real component of the exponential of a complex number.</td>
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<tr>
<td>CEXP1</td>
<td>Compute the complex component of the exponential of a complex number.</td>
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<td>CLOG</td>
<td>Compute the real component of the logarithm of a complex number.</td>
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<td>CLOGI</td>
<td>Compute the complex component of the logarithm of a complex number.</td>
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<tr>
<td>CSQRT</td>
<td>Compute the real component of the square root of a complex number.</td>
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<tr>
<td>CSQRTI</td>
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**APPLICATIONS**

Elementary functions

**IMPLEMENTATION DATE**

94/10
PROGRAM

X1LABEL SOLID = REAL COMPONENT
X2LABEL DASH = COMPLEX COMPONENT
LINE SOLID DASH
YLIMITS -3 3
MULTIPILOT 2 2; MULTIPILOT CORNER COORDINATES 0 0 100 100
LET C = PI/4
TITLE CSIN, COMPLEX COMPONENT = ^C
PLOT CSIN(X,C) FOR X = -10 0.1 10 AND
PLOT CSINI(X,C) FOR X = -10 0.1 10
LET C = -PI/4
TITLE CSIN, COMPLEX COMPONENT = ^C
PLOT CSIN(X,C) FOR X = -10 0.1 10 AND
PLOT CSINI(X,C) FOR X = -10 0.1 10
LET C = PI/2
TITLE CSIN, COMPLEX COMPONENT = ^C
PLOT CSIN(X,C) FOR X = -10 0.1 10 AND
PLOT CSINI(X,C) FOR X = -10 0.1 10
LET C = -PI/2
TITLE CSIN, COMPLEX COMPONENT = ^C
PLOT CSIN(X,C) FOR X = -10 0.1 10 AND
PLOT CSINI(X,C) FOR X = -10 0.1 10
END OF MULTIPILOT