FRESNC

PURPOSE
Compute the Fresnel cosine integral.

DESCRIPTION
The Fresnel cosine integral is defined as:

$$C(x) = \int\limits_0^x \cos\left(\frac{\pi t^2}{2}\right) dt \qquad \textbf{(EQ Aux-145)}$$

SYNTAX
LET \<y> = FRESNC(\<x>)   \<SUBSET/EXCEPT/FOR qualification>

where \<x> is a number, variable, or parameter;

    \<y> is a variable or a parameter (depending on what \<x> is where the computed FRESNC integral values are stored;

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

EXAMPLES
LET A = FRESNC(0.1)
LET A = FRESNC(X)

NOTE
DATAPLOT uses ACM algorithm 723 from the ACM Transactions of Mathematical Software (see the REFERENCE section below) to compute the Fresnel integrals.

DEFAULT
None

SYNONYMS
None

RELATED COMMANDS
FRESNS	=	Compute the Fresnel sine integral.
FRESNF	=	Compute the Fresnel auxillary function f.
FRESNG	=	Compute the Fresnel auxillary function g.
DAWS	=	Compute the Dawson integral.
ERF	=	Compute the error function.
ERFC	=	Compute the complementary error function.
SININT	=	Compute the sine integral.
SININT	=	Compute the cosine integral.
EXPINTN	=	Compute the exponential integral of order N.
LOGINT	=	Compute the logarithmic integral.

REFERENCE
"Handbook of Mathematical Functions, Applied Mathematics Series, Vol. 55," Abramowitz and Stegun, National Bureau of Standards, 1964 (chapter 7).

"Algorithm 723: Fresnel Integrals," Snyder, ACM Transactions on Mathematical Software, Volume 19, Number 4, 1993, (pp. 452-456).

APPLICATIONS
Special Functions

IMPLEMENTATION DATE
94/11

PROGRAM
TITLE AUTOMATIC
PLOT FRESNC(X) FOR X = -5 0.01 5