SINH

PURPOSE

Compute the hyperbolic sine for a variable or parameter.

DESCRIPTION

The hyperbolic sine is defined as:

$$\sinh(x) = \frac{(e^x - e^{-x})}{2} \qquad \textbf{(EQ 7-111)}$$

This function is defined for all real x. The range is negative infinity to positive infinity.

SYNTAX

LET <y2> = SINH(<y1>) <SUBSET/EXCEPT/FOR qualification>

where <y1> is a number, parameter, or variable;

<y2> is a variable or a parameter (depending on what <y1> is) where the computed hyperbolic sine value is stored;

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

EXAMPLES

LET A = SINH(-2)
LET A = SINH(A1)
LET X2 = SINH(PI/2)

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

SIN	=	Compute sine.
COSH	=	Compute hyperbolic cosine.
TANH	=	Compute hyperbolic tangent.
COTH	=	Compute hyperbolic cotangent.
SECH	=	Compute hyperbolic secant.
CSCH	=	Compute hyperbolic cosecant.
ARCCOSH	=	Compute hyperbolic arccosine.
ARCCOTH	=	Compute hyperbolic arccotangent.
ARCCSCH	=	Compute hyperbolic arccosecant.
ARCSECH	=	Compute hyperbolic arcsecant.
ARCSINH	=	Compute hyperbolic arcsine.
ARCTANH	=	Compute hyperbolic arctangent.

APPLICATIONS

Trigonometry

IMPLEMENTATION DATE

Pre-1987

PROGRAM

```
TITLE SINH(X) FOR X = -5 TO 5
Y1LABEL SINH(X)
X1LABEL X
PLOT SINH(X) FOR X = -5 0.01 5
```