LN

**PURPOSE**

Compute the natural logarithm of a number.

**DESCRIPTION**

The natural logarithm is the inverse of the exponential function:

\[ y = e^x \]  

(EQ 6-95)

That is, given the value of y, the log is the value of the exponent. The input value y must be greater than zero.

Logarithms are a commonly used transformation. The two primary reasons are to symmetrize a skewed data set or to reduce the magnitude of large scale numbers.

**SYNTAX**

LET \(<y2> = \text{LN}(<y1>)\)  
where \(<y1>\) is a variable or a parameter containing positive decimal number(s);  
\(<y2>\) is a variable or a parameter (depending on what \(<y1>\) is) where the computed natural logarithms are stored;  
and where the \(<\text{SUBSET/EXCEPT/FOR qualification}>\) is optional.

**EXAMPLES**

LET A = LN(14)  
LET A = LN(A1)  
LET X2 = LN(X1)  
LET X2 = LN(X1-4)

**DEFAULT**

None

**SYNONYMS**

LOG

**RELATED COMMANDS**

LOG10 = Compute the base 10 logarithm of a number.  
LOG2 = Compute the base 2 logarithms of a number.  
LOG = Specify logarithmic scales on either the X or Y axis.

**APPLICATIONS**

Data transformation

**IMPLEMENTATION DATE**

Pre-1987
PROGRAM
  TITLE AUTOMATIC
  PLOT LN(X) FOR X = .01 .01 9.9