PRODUCT

PURPOSE
Compute the product of the elements in a variable.

SYNTAX

\[
\text{LET } <\text{par}> = \text{PRODUCT } <\text{x1}> <\text{SUBSET/EXCEPT/FOR qualification}>
\]

where \(<\text{x1}>\) is a response variable;

\(<\text{par}>\) is a parameter where the computed product is stored;

and where the \(<\text{SUBSET/EXCEPT/FOR qualification}>\) is optional.

EXAMPLES

\[
\begin{align*}
\text{LET PROD} &= \text{PRODUCT Y1} \\
\text{LET PROD} &= \text{PRODUCT Y1 SUBSET TAG} > 2
\end{align*}
\]

NOTE
This command is related to, but distinct from, the CUMULATIVE PRODUCT command. The PRODUCT command computes the product of all the elements in a variable and returns a single scalar value (i.e., \(X(1) \times X(2) \times \ldots \times X(N)\)). The CUMULATIVE PRODUCT command returns a variable where element I is the product of elements 1 through I of the original variable.

DEFAULT
None

SYNONYMS
None

RELATED COMMANDS

\[
\begin{align*}
\text{PRODUCT PLOT} &= \text{Generate a product versus subset plot.} \\
\text{CUMULATIVE PRODUCT} &= \text{Compute the cumulative product of a variable.} \\
\text{SUM} &= \text{Compute the sum of the elements in a variable.} \\
\text{SEQUENTIAL DIFFERENCE} &= \text{Compute the sequential differences of a variable.} \\
\text{INTEGRAL} &= \text{Compute the integral of the elements in a variable.}
\end{align*}
\]

APPLICATIONS
Rare Usage

IMPLEMENTATION DATE
Pre-1987

PROGRAM

\[
\begin{align*}
. \quad \text{THIS EXAMPLE COMPUTES FACTORIALS} \\
\text{LET N} &= 10 \\
\text{LOOP FOR K} &= 1 \ 1 \ N \\
\quad &\quad \text{LET Y1} = \text{SEQUENCE} \ 1 \ 1 \ K \\
\quad &\quad \text{LET A} = \text{PRODUCT} \ Y1 \\
\quad &\quad \text{PRINT} \ K \ A \\
\text{END OF LOOP}
\end{align*}
\]