LOGICAL AND

PURPOSE
Carry out the logical conjunction of 2 variables where true values are coded as 1 and false values are coded as 0.

DESCRIPTION
Logical and means that the result is true only if both the input values are true. Otherwise, the result is false. For example, the logical and of the 4-element variable 1 1 0 0 and the 4-element variable 1 0 1 0 is the 4-element variable 1 0 0 0. The logical sequence T F T F T T F F F T F T (T = true, F = false) can be coded as a "logical" variable as follows:

    LET Y = DATA 1 0 1 0 1 1 0 0 0 1 0 1

For long sequences, you can use the SERIAL READ command. The IND function can be helpful in converting a numeric variable that is not coded with 0 and 1's to one that is.

SYNTAX
LET <v3> = LOGICAL AND <v1> <v2>   <SUBSET/EXCEPT/FOR qualification>
where <v1> is the first variable;
    <v2> is the second variable;
    <v3> is the resultant variable;
and where the <SUBSET/EXCEPT/FOR qualification> is optional and rarely used in this context.

EXAMPLES
LET Y3 = LOGICAL AND Y1 Y2

DEFAULT
None

SYNONYMS
None

RELATED COMMANDS
LOGICAL OR	=	Carries out a logical or.
LOGICAL NAND	=	Carries out a logical negative and.
LOGICAL NOR	=	Carries out a logical nor.
LOGICAL XOR	=	Carries out a logical xor.
LOGICAL NOT	=	Carries out a logical not.
LOGICAL IFF	=	Carries out a logical if-and-only-if.

REFERENCE
"Handbook of Mat hematical Tables and Functions," Edition 5, Burington, McGraw-Hill, 1973 (page 132).

APPLICATIONS
Mathematics

IMPLEMENTATION DATE
87/10

PROGRAM
LET Y1 = DATA 1 1 0 0
LET Y2 = DATA 1 0 1 0
LET Y3 = LOGICAL AND Y1 Y2
SET WRITE DECIMALS 0
WRITE Y1 Y2 Y3