

MATRIX DIAGONAL**PURPOSE**

Extract the matrix diagonal and save it in a variable.

SYNTAX

LET <var> = MATRIX DIAGONAL <mat> <SUBSET/EXCEPT/FOR qualification>

where <mat> is a square matrix of dimension N;

<var> is a variable where the matrix diagonals are saved (it will have length N);

and where the <SUBSET/EXCEPT/FOR qualification> is optional and rarely used in this context.

EXAMPLES

LET S = MATRIX DIAGONAL M

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

DIAGONAL MATRIX	=	Create a diagonal matrix.
MATRIX DEFINITION	=	Set a matrix definition.
MATRIX MINOR	=	Compute a matrix minor.
MATRIX NUMBER OF COLUMNS	=	Compute the number of columns in a matrix.
MATRIX NUMBER OF ROWS	=	Compute the number of rows in a matrix.
MATRIX SUBMATRIX	=	Define a matrix submatrix.

REFERENCE

Any standard text on linear algebra.

APPLICATIONS

Linear Algebra

IMPLEMENTATION DATE

93/10

PROGRAM

```
DIMENSION 100 COLUMNS
SKIP 25
COLUMN LIMITS 20 132
READ MATRIX AUTO83.DAT X
LET S = VARIANCE-COVARIANCE MATRIX X
LET VAR = MATRIX DIAGONAL S
PRINT VAR
```

The following values are printed for VAR.

```
0.6125112E+02
0.2907787E+01
0.1094964E+05
0.1480991E+04
0.7274072E+06
0.7593716E+01
0.1355851E+02
0.6476606E+00
```