

**MATRIX ELEMENT****PURPOSE**

Copy an element of a matrix (i.e., the value for a specific row and column of the matrix) into a parameter.

**DESCRIPTION**

This command is typically useful in loops. The following syntax can also be used (it does NOT work for versions prior to 93/10):

```
LET A = M^K(J)
```

where M is a matrix and K is a loop index parameter.

**SYNTAX**

```
LET <par> = MATRIX ELEMENT <mat> <rowid> <colid>
```

where <mat> is a matrix for which the element is to be extracted;

<rowid> is a number or parameter that specifies the row to be extracted;

<colid> is a number or parameter that specifies the column to be extracted;

and <par> is a parameter where the resulting element is saved.

**EXAMPLES**

```
LET C = MATRIX ELEMENT A 3 2
```

```
LET C = MATRIX ELEMENT A K J
```

**DEFAULT**

None

**SYNONYMS**

None

**RELATED COMMANDS**

MATRIX REPLACE ELEMENT	=	Replace an element of the matrix.
MATRIX REPLACE ROW	=	Replace a row of the matrix.
MATRIX ROW	=	Extract a row of the matrix.
MATRIX NUMBER OF COLUMNS	=	Compute the number of columns in a matrix.
MATRIX NUMBER OF ROWS	=	Compute the number of rows in a matrix.

**APPLICATIONS**

Linear Algebra

**IMPLEMENTATION DATE**

93/10

**PROGRAM**

```
. EXTRACT THE DIAGONAL OF THE MATRIX
READ MATRIX M
14 37 32
19 42 17
12 17 10
END OF DATA
.
LET NROW = MATRIX NUMBER OF COLUMNS M
.
LOOP FOR K = 1 1 NROW
  LET A = MATRIX ELEMENT M K K
  LET DIAG(K) = A
END OF LOOP
PRINT DIAG
```

The variable DIAG will contain the values 14, 42, and 10.