MATRIX SPECTRAL RADIUS

PURPOSE
Compute the spectral radius of a matrix.

DESCRIPTION
The spectral radius is the maximum of the absolute values of the eigenvalues of a matrix.

SYNTAX
LET <par> = MATRIX SPECTRAL RADIUS <mat>   <SUBSET/EXCEPT/FOR qualification>

where <mat> is a matrix for which the spectral radius is to be computed;

    <par> is a parameter where the resulting spectral radius is saved;

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

EXAMPLES
LET C = MATRIX SPECTRAL RADIUS A

DEFAULT
None

SYNONYMS
None

RELATED COMMANDS

MATRIX SPECTRAL NORM	=	Compute the matrix spectral norm.
MATRIX EIGENVALUES	=	Compute the matrix eigenvalues.
MATRIX EUCLIDEAN NORM	=	Compute the matrix Euclidean norm.
SINGULAR VALUES	=	Compute the singular values of a matrix.

REFERENCE
"A First Course in Numerical Analysis," 2nd ed., Ralston and Rabinowitz, 1978, McGraw-Hill.

APPLICATIONS
Linear Algebra

IMPLEMENTATION DATE
87/10 (versions prior to 95/6 are restricted to square matrices)

PROGRAM
```
DIMENSION 100 COLUMNS
READ MATRIX X
16 16 19 21 20 23
14 17 15 22 18 22
24 23 21 24 20 23
18 17 16 15 20 19
18 11 9 18 7 14
END OF DATA
LET SR = MATRIX SPECTRAL RADIUS X
PRINT SR
```

The resulting spectral radius is 87.48.