

## MATIO.APP

Appending MATIO.APP to a program makes available the command MATIN@, which provides an easy way to input or read data to a matrix, and the command MATPRINT@, which simplifies printing matrix data. The format for MATIN@ is

MATIN@ stringexpression;matrixname

Note that a semicolon rather than a comma precedes matrixname, and that the matrix must be real (not integer). With this command you can either read matrix data from data statements or you can input data to the matrix from the keyboard. If stringexpression equals "R", data will be read; if it equals "I", data will be input from the keyboard. Matrixname specifies a real matrix to which the data is sent. For example, the following program lines will read the numbers 1, 2, 3, 4, 5, 6 into the real matrix T and then print the six numbers:

```
100 DIM T(2,1)
110 MATIN@ "R";T
120 DATA 1,2,3,4,5,6
130 FOR A%=0% TO 2%
140   FOR B%=0% TO 1%
150     PRINT T(A%,B%)
160   NEXT B%
170 NEXT A%
```

If you want to input data from the keyboard to the matrix, you would delete line 120 and change line 110 to MATIN@ "I";T. When line 110 is executed the row and column numbers for each element will be displayed and then the number to be put into that location will be asked for. Note that the first row and the first column are both numbered zero.

The format for MATPRINT@ is

MATPRINT@ stringexpr, integerexpr, integerexpr; matrixname

Again note that a semicolon rather than a comma precedes matrixname. Stringexpression must equal "P" if you want the data output to a printer and "S" if you want it sent to the screen. Matrixname specifies the matrix whose data is to be printed. Each row of the matrix will be printed on one line. The first integerexpression specifies how much space is available for each number. For example, if this number is nine, each element of the array should have less than nine digits; otherwise, the numbers will be printed without spaces between them. Before printing, all of the elements of the matrix will be rounded to the number of decimal places specified by the second integerexpression.

## MATSET.APP

Appending MATSET.APP to a program makes available the command MATSET@, whose format is

MATSET@ stringexpression, realexpression; matrixname

Note that a semicolon rather than a comma precedes matrixname and that the matrix must be real. If stringexpression equals "A", all elements of the array will be set to the value of realexpression. If stringexpression