

Entering and Multiplying Matrices

A matrix is a rectangular array of elements in rows and columns that is treated as a single element. A matrix is often used for expressing multiple linear equations with multiple variables.

Example

Enter two matrices and execute multiplication of the two.

- | | | |
|---|---|---|
| <ol style="list-style-type: none"> 1. Enter a 3×3 matrix A 2. Enter a 3×3 matrix B 3. Multiply the matrices A and B | $A = \begin{bmatrix} 1 & 2 & 1 \\ 2 & 1 & -1 \\ 1 & 1 & -2 \end{bmatrix}$ | $B = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ |
|---|---|---|

Before Starting There may be differences in the results of calculations and graph plotting depending on the setting. Return all settings to the default value and delete all data.
As the Matrix feature is only available on the Advanced keyboard, this section does not apply to the Basic keyboard.

Step & Key Operation

Display

Notes

1-1 Access the matrix menu.

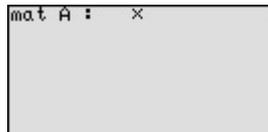
2nd F **MATRIX** **B**

1



1-2 Set the dimension of the matrix at three rows by three columns.

3 **ENTER** **3** **ENTER**

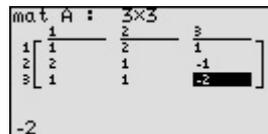


1-3 Enter the elements of the first row, the elements of the second row, and the elements of the third row.

1 **ENTER** **2** **ENTER** **1** **ENTER**

2 **ENTER** **1** **ENTER** **(-)** **1** **ENTER**

1 **ENTER** **1** **ENTER** **(-)** **2** **ENTER**



Step & Key Operation

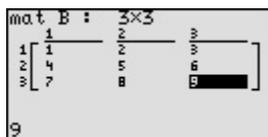
Display

Notes

2

Enter a 3x3 matrix B.

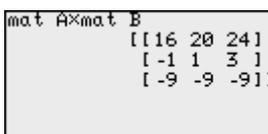
2nd F MATRIX B 2 3 ENTER 3 ENTER
 1 ENTER 2 ENTER 3 ENTER
 4 ENTER 5 ENTER 6 ENTER
 7 ENTER 8 ENTER 9 ENTER



3.1

Multiply the matrices A and B together at the home screen.

2nd F MATRIX A 1 X 2nd F MATRIX A 2 ENTER



Matrix multiplication can be performed if the number of columns of the first matrix is equal to the number of rows of the second matrix. The sum of these multiplications ($1 \cdot 1 + 2 \cdot 4 + 1 \cdot 7$) is placed in the 1,1 (first row, first column) position of the resulting matrix. This process is repeated until each row of A has been multiplied by each column of B.

3.2

Delete the input matrices for future use.

2nd F OPTION C
 2 ENTER ENTER
 2nd F QUIT



Matrix multiplication can be performed easily by the calculator.