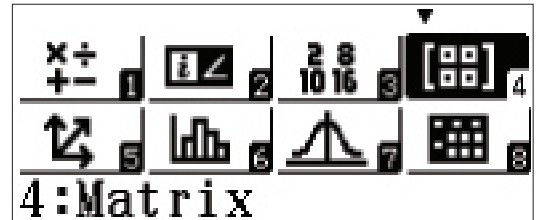


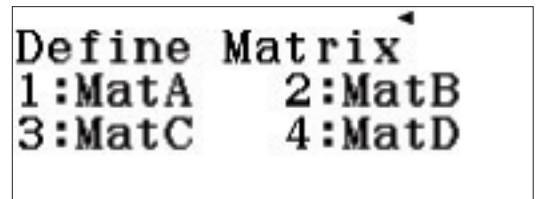
# MATRIX

Operations with matrices and matrix related calculations are all located in the Matrix Menu.

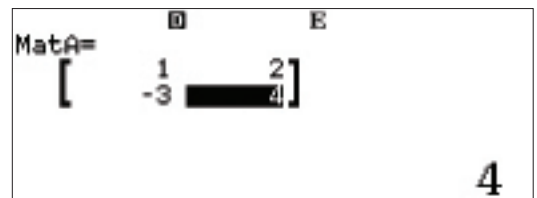
From the Main Menu, use the arrow keys to highlight the Matrix icon and press  $\square$  or press  $\boxed{4}$ .



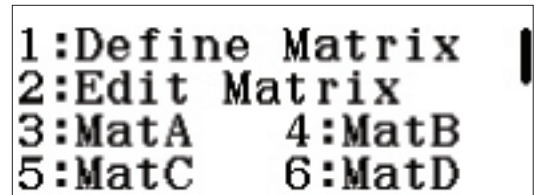
To enter matrices, first, define the matrix.



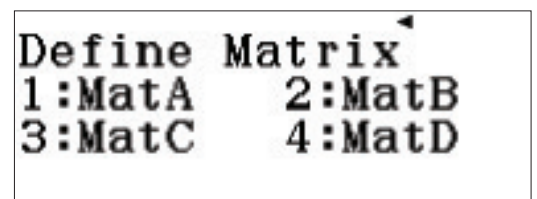
Press  $\boxed{1}$  (MatA)  $\boxed{2}$  (Rows)  $\boxed{2}$  (Columns)  
 $\boxed{1}$   $\square$   $\boxed{2}$   $\square$   $\boxed{2}$   $\square$   $\boxed{4}$   $\square$ .



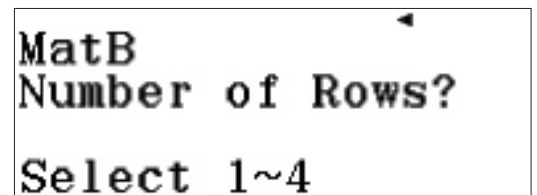
To enter a second matrix, press  $\square$  (OPTN).



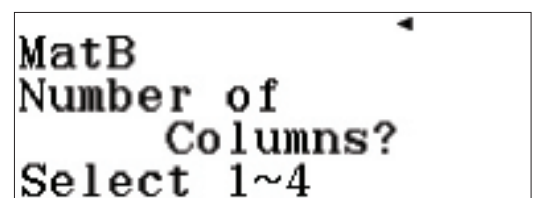
From the resulting popup window, press  $\boxed{1}$  (Define Matrix)  $\boxed{2}$  (MatB).



Select the number of rows,  $\boxed{2}$  (Rows).



Select the number of columns,  $\boxed{2}$  (Columns).



# MATRIX

Enter the matrix values by pressing

$\boxed{3} \boxed{=} \boxed{(-)} \boxed{6} \boxed{=} \boxed{8} \boxed{=} \boxed{2} \boxed{=}$ .

To perform matrix calculations, like addition, subtraction, and multiplication, follow these simple commands.

To recall the name of a matrix, press  $\boxed{\text{OPTN}}$ .

To add  $A + B$ , press  $\boxed{3} \boxed{(\text{MatA})} \boxed{+} \boxed{\text{OPTN}} \boxed{4} \boxed{(\text{MatB})} \boxed{=}$ .

The solution matrix is displayed in the window and can be viewed without scrolling.

To calculate the determinant of the matrix, press

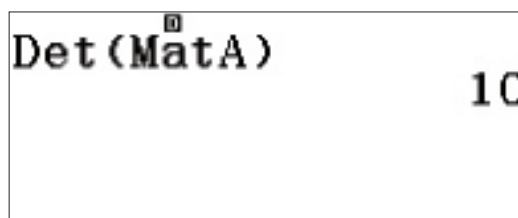
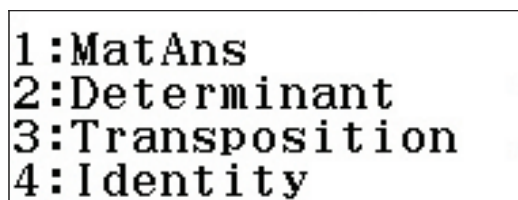
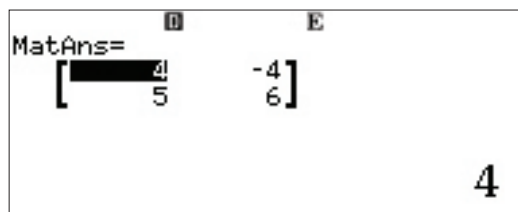
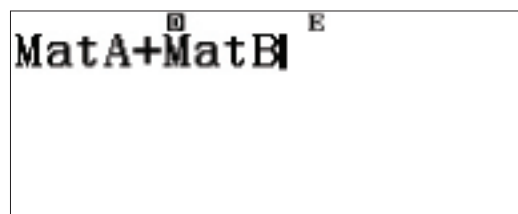
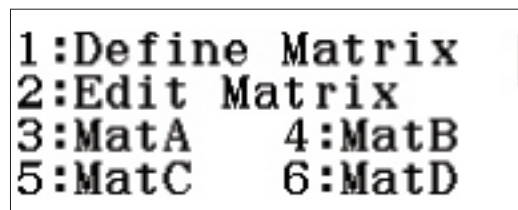
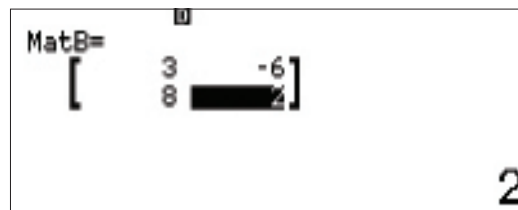
$\boxed{\text{OPTN}} \boxed{\nabla} \boxed{2} \boxed{(\text{Determinant})} \boxed{\text{OPTN}} \boxed{3} \boxed{(\text{MatA})} \boxed{)} \boxed{=}$ .

Matrices can be used to solve a system of equations.

Take the following equation with 3 unknowns:

$$\begin{cases} x + y = 3 \\ -x + 3y + 4z = -3 \\ 4y + 3z = 2 \end{cases}$$

Enter the coefficient matrix as Matrix A and the solution matrix as Matrix B.



# MATRIX

Redefine the matrices by pressing **OPTN** **1**  
(Define Matrix).

Press **1** (MatA) to define Matrix A and enter the  
3 x 3 coefficient matrix.

Select the number of rows, **3** (Rows).

Select the number of columns, **3** (Columns).

Enter the values of the coefficients, pressing **□** after  
each one to move to the next value.

Now, enter the 3 x 1 solution matrix as Matrix B.

Press **OPTN** **1** (Define Matrix).

Define Matrix B **2** (MatB) as a 3 x 1, so select **3** (Rows)  
and **1** (Columns) from the next two windows.

```
1:Define Matrix
2:Edit Matrix
3:MatA      4:MatB
5:MatC      6:MatD
```

```
Define Matrix
1:MatA      2:MatB
3:MatC      4:MatD
```

```
MatA
Number of Rows?
Select 1~4
```

```
MatA
Number of
Columns?
Select 1~4
```

```
MatA=
      □      E
      [ 1      1      0 ]
      [-1     3      4 ]
      [ 0      4      3 ]
```

```
1:Define Matrix
2:Edit Matrix
3:Matrix Calc
```

```
Define Matrix
1:MatA      2:MatB
3:MatC      4:MatD
```

# MATRIX

Enter the values of the coefficients, pressing  $\square$  after each one to move to the next value.

Press  $\square$  to return to the Matrix Calculation screen.

The solution can be found by calculating  $A^{-1} \times B$ .

Press  $\square$   $\square$  (MatA)  $\square$   $\square$   $\square$  (MatB)  $\square$ .

The solution represents the following:

$$\begin{cases} x = 1 \\ y = 2 \\ z = -2 \end{cases}$$

This same system can also be solved using the Equation icon.

