



1.14 Matrices

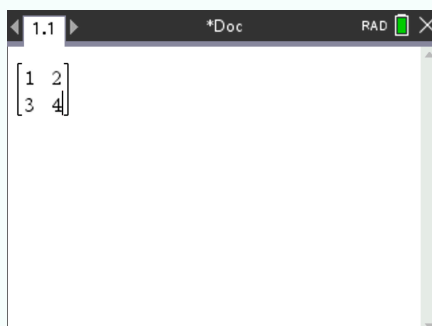
1.14.1 Enter a matrix

Consider the matrix



$$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

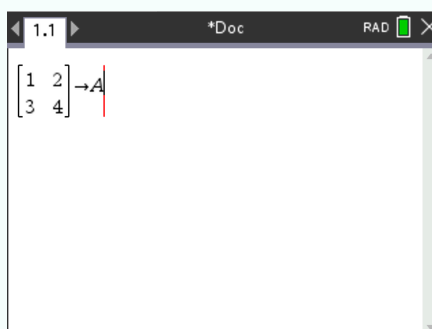
There are two ways to enter a matrix in your calculator.

1st way: If you just want to use the matrix for one computation, press  and select Matrix & Vector > Create > Matrix. Choose the proper dimensions (here, **Number of row=2** and **Number of col=2**), and press . You can then fill the matrix as follows:



use the arrows to navigate through cells

2nd way: If you want to store the matrix in the calculator, do the same process. Then, press  and . Enter the name of the matrix, here it is 'A'.



We will use the second way throughout the section, but first method also works

1.14.2 Call a matrix

Consider the matrix

$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

Once you entered it (see 1.14.1), you can display it in the main screen by entering 'A' and press . The matrix is displayed.



1.14.3 Operations on matrices

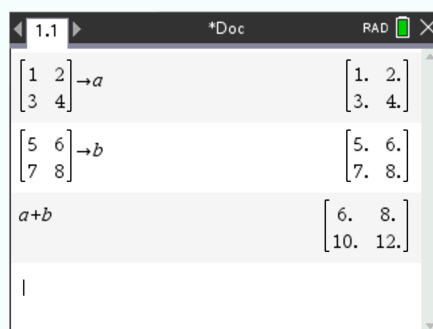
Consider the two matrices



$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$$

$$B = \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$$

Suppose you want to add A and B .


- ① Enter A and B (see 1.14.1), call A (see 1.14.2), press  and call B (see 1.14.2). Press . The following should be displayed:




If you want to subtract or multiply the matrices, follow the same procedure and change the operation ( for subtraction, and  for multiplication).

To multiply a matrix by a scalar, use also .

1.14.4 Identity and zero matrix



To quickly enter the identity matrix on the calculator, suppose in dimension 5, press , select Matrix & Vector > Create > Identity and input the dimension in the parenthesis (here: **5**).

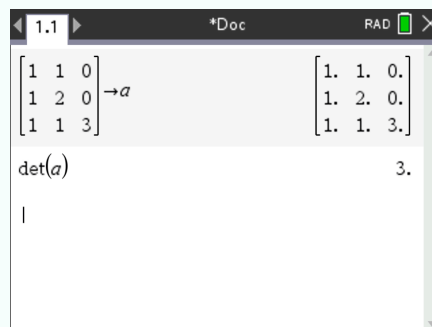
To quickly enter the zero matrix on the calculator, suppose in dimension 5, press , select Matrix & Vector > Create > Zero Matrix and input the dimension in the parenthesis (here: **5,5**).

1.14.5 Compute the determinant of a matrix

Suppose you want to know the determinant of the following matrix:

$$A = \begin{pmatrix} 1 & 1 & 0 \\ 1 & 2 & 0 \\ 1 & 1 & 3 \end{pmatrix}$$

- ① Enter the matrix (see 1.14.1)
- ② Press , select Matrix & Vector > Determinant
- ③ Call the matrix (see 1.14.2)
- ④ Press 




The result should be 3.

1.14.6 Inverse of a matrix

Suppose you want to know the inverse of the following matrix:

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 1 & 2 & 0 \\ 1 & 1 & 3 \end{pmatrix}$$

- ① Enter the matrix (see 1.14.1)
- ② Call the matrix (see 1.14.2)
- ③ Press  and enter '-1'

④ Press 

The following result should be displayed:

