

Matrices for the TI-89 Calculator

The following instructions explain key-by-key keystrokes necessary to enter a linear system of equations and how to solve them. First, create the matrix of coefficients. Then, create the matrix of constants. The dimensions appropriate for solving n equations in n unknowns are:

Matrix of coefficients [$n \times n$]; and Matrix of constants [$n \times 1$]

Clear the variables a – z: This is not strictly necessary if you already know what variables you have been using. Simply select two matrix names not already in use. To clear the one letter variables press **2nd F6, 1, ENTER**.

Creating the matrix of coefficients.

1. Press **APPS**

Type 6 to select Data/Matrix Editor.

2. Press 3 to create a new matrix.

Right arrow on Data type, then 2 to create a matrix.

3. Down arrow twice and enter the matrix name: a. (no ALPHA key required.)

Down arrow again (**ALPHA** to turn off alpha mode then **enter the number of rows** by overtyping the first number. Use the down arrow again to move over to the 2nd number and overtype it with the **number of columns**. Then press **ENTER** twice.)

4. You will see the matrix and the cursor is on the element row 1, column 1; [1,1]
It is ready for you to enter element [1,1]. Enter the value and press **ENTER**.

The cursor automatically moves to the next element [1,2] for you to enter.

(If you make a mistake move the cursor with the arrow keys and type in another number.)

5. To exit the MATRIX-EDIT (entry) mode, press **2nd QUIT**.

Creating the matrix of constants.

Repeat the 5-step procedure above to enter the matrix of constants. Use [B] to store these values.

Solving for the unknowns.

At the home screen enter: $a^{-1}b$

Here are the keystrokes required to enter this expression.

ALPHA A ^-1 ALPHA B ENTER