Matrix Operations on the TI-89

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Entering a Matrix: Press [APPS] and select [Data/Matrix Editor]. Select either 1:Current, 2:Open..., or 3, New where appropriate. Selecting New and entering the information about the matrix as follows:
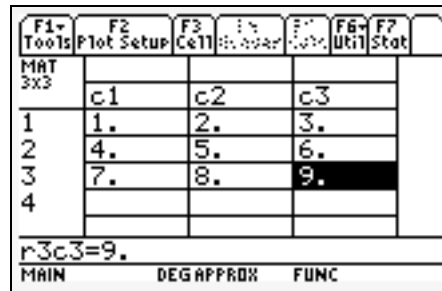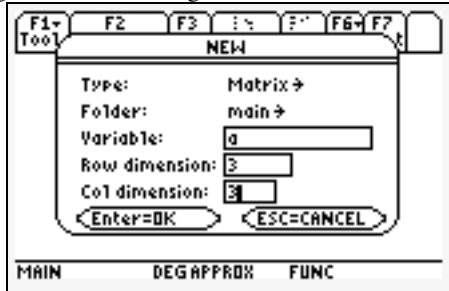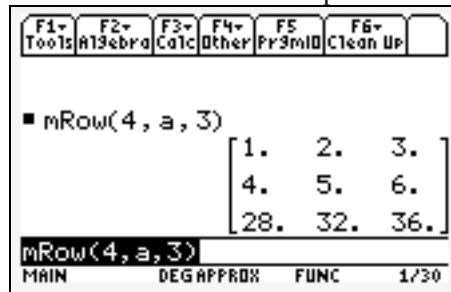

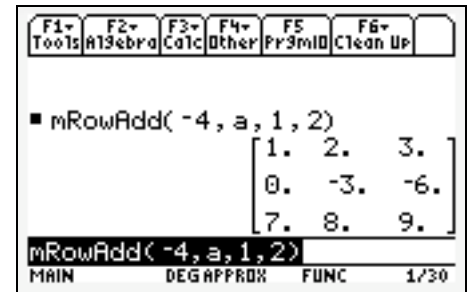Press[HOME] to return to the Home screen. Now pressing a and [ENTER] will show you the matrix.

Row Operations: The Row operations can be found by pressing [2nd][MATH] selecting [4: Matrix] and selecting [J: Row ops]. Row ops is far enough down the list that moving up the list is faster. Here are examples of row operations:
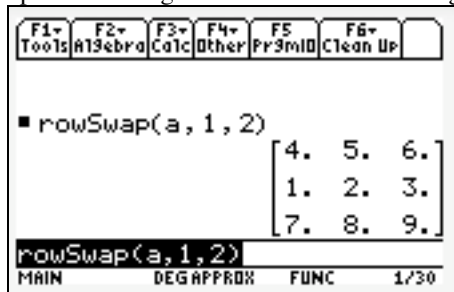
Swap rows 1 and 2 $\left(R_1 \leftrightarrow R_2\right)$

Multiply row 3 by 4 $\left(4R_3 \to R_3\right)$

Add –4 times row 1 to row 2
$\left(-4R_1 + R_2 \to R_2\right)$

Note: If you are doing many row operations on the same matrix you should use [ANS] instead of the name of the matrix after the first row operation.

Row Echelon Form (ref) and Reduced Row Echelon Form (rref): Press [2nd][MATH] select [4:Matrix]. Select the desired form followed by the name of the matrix and press enter. For example:
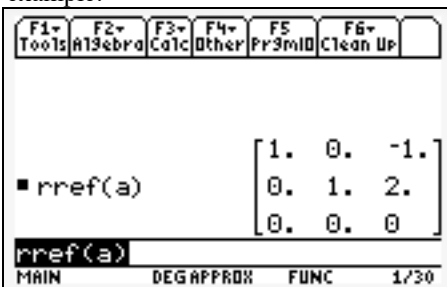
Inverse Matrices: Select the name of the matrix and raise it to the –1 power. The matrix A above is not invertible so we consider
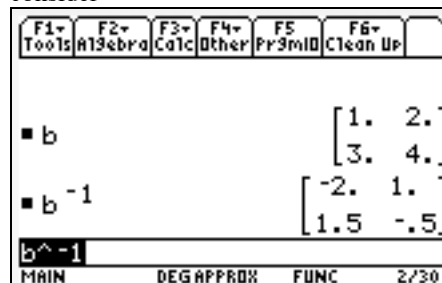
If you want your results in fractions select [Exact/Approx] after pressing [MODE]. Set the calculator to [2: EXACT] then all computations will come out in fractions.

Addition and Multiplication: These operations are done with the regular multiplication and addition keys along with the names of the matrices. For example consider the matrices B and C shown on the left with the computations shown on the right.