

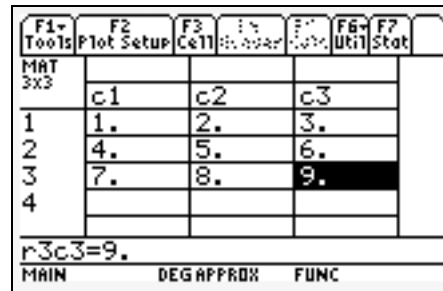
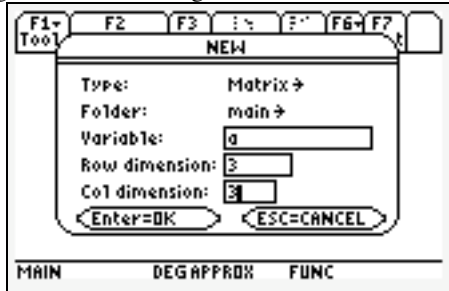
# Matrix Operations on the TI-89

Written by Jeff O'Connell – [joconnell@ohlone.edu](mailto:joconnell@ohlone.edu)

Ohlone College

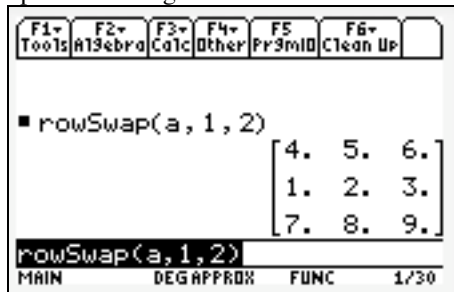
<http://www2.ohlone.edu/people2/joconnell/ti/>

**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:

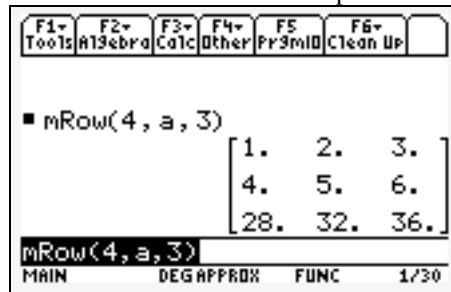


Press[HOME] to return to the Home screen. Now pressing a and [ENTER] will show you the matrix.

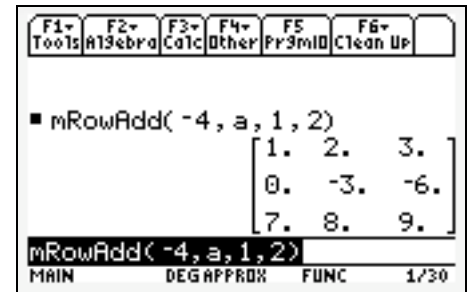
**Row Operations:** The Row operations can be found by pressing [2<sup>nd</sup>][MATH] selecting [4: Matrix] and selecting [J: Row ops]. Row ops is far enough down the list that moving up the list is faster. Here are examples of row operations:



Swap rows 1 and 2 ( $R_1 \leftrightarrow R_2$ )



Multiply row 3 by 4 ( $4R_3 \rightarrow R_3$ )

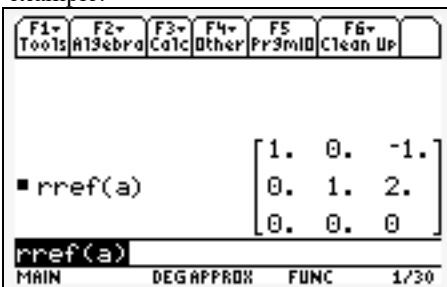


Add -4 times row 1 to row 2  
( $-4R_1 + R_2 \rightarrow R_2$ )

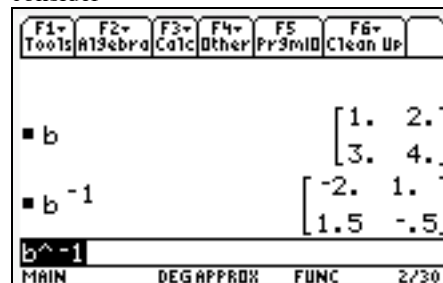
**Note:** If you are doing many row operations on the same matrix you should use [ANS] instead of the name of the matrix after the first row operation.

## Row Echelon Form (ref) and Reduced Row Echelon Form

(**rref**): Press [2<sup>nd</sup>][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.

