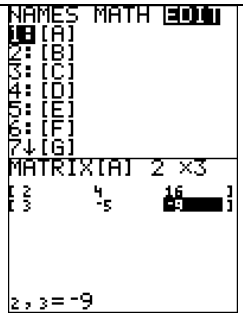
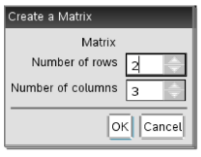
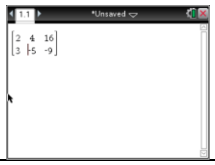
H Algebra 3 **Name:**
Section 11.2

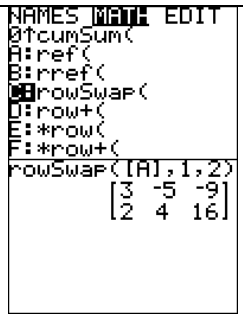
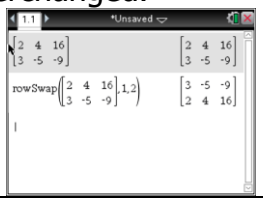
Example 1: $\begin{cases} 2x + 4y = 16 \\ 3x - 5y = -9 \end{cases}$

Enter the *augmented* matrix:

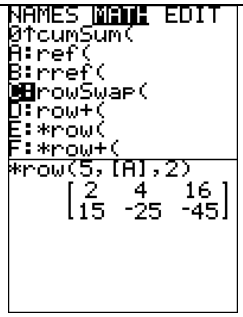
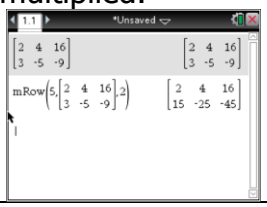
TI-84		**TI-Nspire**
• Press 2nd MATRIX> EDIT> 1 • Create a matrix with two rows and 3 columns • Press ENTER after each entry		• Press on > New Document > Add Calculator. • Press and select the matrix template. • Create a matrix with two rows and three columns. Press tab to move to entries.  

You can do three row operations:

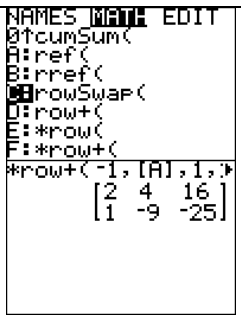
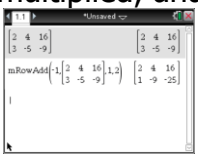
- Interchange any two rows

TI-84		**TI-Nspire**
• Press 2nd MATRIX> MATH> C • You need to enter the name of the matrix, the first row number, and the second row number $R_1 \leftrightarrow R_2$		• Press MENU>Matrix&Vector>RowOperations> SwapRows. Highlight the previous matrix to insert it and name the two rows to be interchanged. 

- Multiply any row by a non-zero multiple of that row

TI-84		**TI-Nspire**
• Press 2nd MATRIX> MATH> E • You need to enter the scalar, the name of the matrix, and the row number of the row to be multiplied. $5 \bullet R_2 \rightarrow R_2$		• Press MENU>Matrix&Vector>RowOperations> Multiply Rows. Enter the scalar, highlight the previous matrix to insert it and name the row to be multiplied. 

- Replace a row with the sum of the row and a constant multiple of another row. (This includes just adding two rows where the multiplier is one.)

TI-84		TI-Nspire
• Press 2nd MATRIX> MATH> F You need to enter the scalar, the name of the matrix, the row to be multiplied, and the row to be added $-1 \bullet R_1 + R_2 \to R_2$		• Press MENU>Matrix&Vector>RowOperations> Multiply Row and Add. Enter the scalar, highlight the previous matrix to insert it, name the row to be multiplied, and the row to be added. 

Example 1: Solve $\begin{cases} 2x + 4y = 16 \\ 3x - 5y = -9 \end{cases}$**. Perform row operations to write in echelon form.**

Support your work by recording the row operations.

$$\begin{bmatrix} 2 & 4 & 16 \\ 3 & -5 & -9 \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square \\ \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square \\ \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square \\ \square & \square & \square \end{bmatrix}$$

Example 2: Solve $\begin{aligned} x - y + z &= 8 \\ 2x + 3y - z &= -2 \\ 3x - 2y - 9z &= 9 \end{aligned}$**. Justify your answer.**

$$\begin{bmatrix} 1 & -1 & 1 & 8 \\ 2 & 3 & -1 & -2 \\ 3 & -2 & -9 & 9 \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow$$

$$\begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix}$$

Example 3: Solve $\begin{aligned} 4x - 3y + 2z &= 16 \\ 2x - 2y - 3z &= 5 \\ x + y - z &= -1 \end{aligned}$ **. Justify your answer.**

$$\begin{bmatrix} 4 & -3 & 2 & 16 \\ 2 & -2 & -3 & 5 \\ 1 & 1 & -1 & -1 \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow$$

$$\begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix} \longrightarrow \begin{bmatrix} \square & \square & \square & \square \\ \square & \square & \square & \square \\ \square & \square & \square & \square \end{bmatrix}$$