

1.5 The Method of Least Squares

To find the least-squares or regression line:

STAT and choose 1: Edit

Enter the first row/column of data in L1 and the second row/column in L2.

STAT then right arrow to the CALC menu. Choose 4: LinReg(ax+b)

You are now on the home screen, with “LinReg(ax+b)” showing.

VARS then right arrow to Y-VARS, choose 1: Function and 1: Y1.

You are now on the home screen, with “LinReg(ax+b) Y1” showing.

ENTER

Your home screen should now show:

LinReg

y=ax+b

a= [number]

b= [number]

r²= [number]

r= [number]

The equation of the line will also be stored as Y1 in the **Y=** menu.

If you are missing the r and r² values:

2nd **CATALOG** then **D** and scroll down to DiagnosticOn.

ENTER twice.

Repeat the Linear Regression steps.

2.2 Systems of Linear Equations: Unique Solutions**2.3 Systems of Linear Equations: Underdetermined and Overdetermined Systems**

When you see the directive to go to **MATRIX** on your calculator, you will press $\boxed{2^{\text{nd}}}$ $\boxed{x^{-1}}$. If you have the standard **TI-83** version (instead of a **TI-83 Plus** or any version of a **TI-84**), when you see directions to go to **MATRIX**, you need to hit the one button, **MATRIX**.

To perform Gauss-Jordan elimination when showing all row operations:

Enter the matrix:

MATRIX and right arrow to EDIT.

Select a matrix from the list, most often this will be [A] but it doesn't matter which one.

Enter the size of the matrix: number of rows followed by number of columns.

Enter the entries of the matrix. Remember that you are moving across the rows.

Press $\boxed{2^{\text{nd}}}$ **MODE** to QUIT to your home screen.

Modify the matrix with a specific row operation:

MATRIX and right arrow to MATH.

Choose your operation. You may need:

C: rowSwap(usage: rowSwap([A], row A, row B)

E: *row(usage: *row(value, [A], row)

F: *row+(usage: *row+(value, [A], row A, row B)

Once you have made your selection, that operation will appear on your home screen.

Enter the matrix/values appropriate for the function, separated by commas.

(MATRIX and choose 1:[A] for entering the matrix name)

Close the parentheses and **ENTER**.

NOTE: When using row operations one after another, you can press $\boxed{2^{\text{nd}}}$ $\boxed{(-)}$ to select ANS in order to refer to the last resulting matrix, instead of storing the new matrix after each separate row operation.

To perform Gauss-Jordan elimination without showing all row operations:

Enter the matrix:

MATRIX and right arrow to EDIT.

Select a matrix from the list, most often this will be [A] but it doesn't matter which one.

Enter the size of the matrix: number of rows followed by number of columns..

Enter the entries of the matrix. Remember that you are moving across the rows.

Press $\boxed{2^{\text{nd}}}$ **MODE** to QUIT to your home screen.

Modify the matrix with all row operations done in one step:

MATRIX and right arrow to MATH.

Choose your operation,

B: rref(usage: rref([A])

Once you have made your selection, that operation will appear on your home screen.

Enter the appropriate matrix.

(MATRIX and choose 1:[A])

Close the parentheses and **ENTER**.