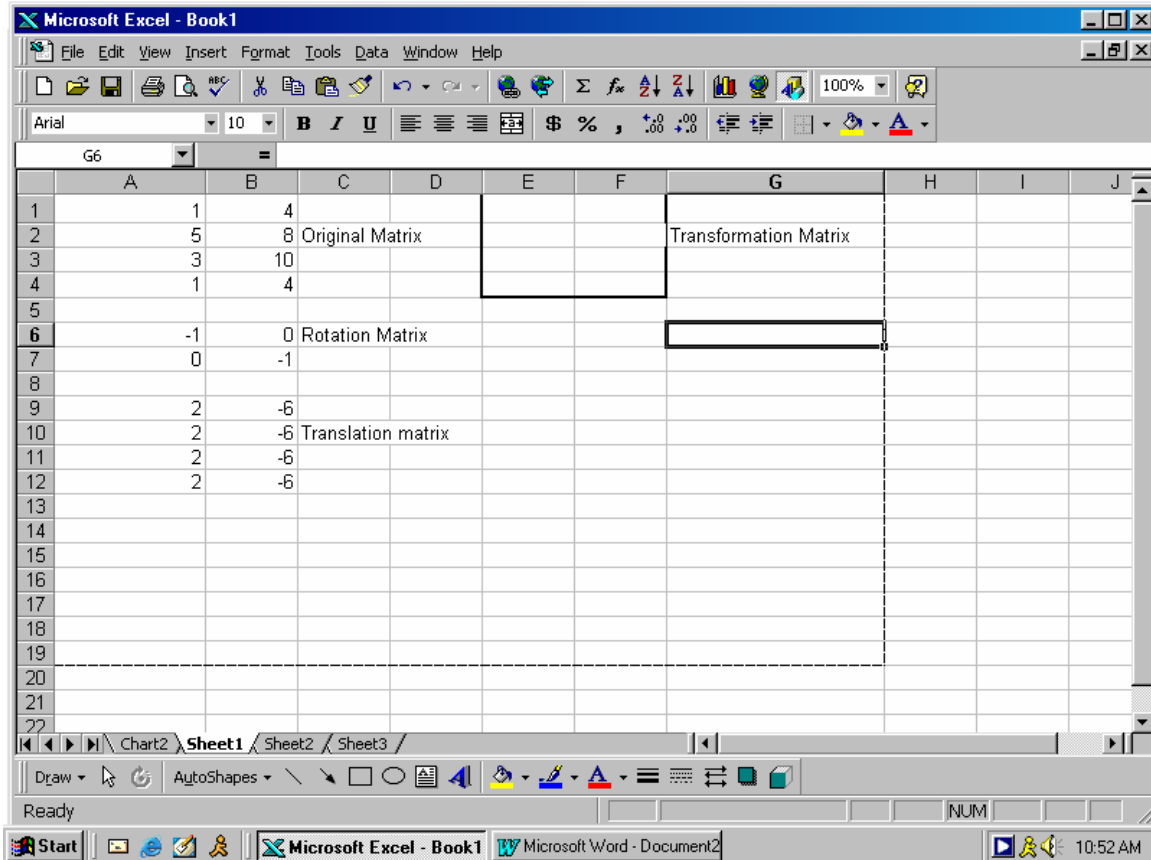


MATRICES:

Create a spreadsheet to appear as follows



Select the data in A1 Through B4 and use the chart wizard.

Select the X -Y scatter option

Select the option with the lines and the points to create a graph

Click next and next again and then save chart as new sheet.

On the chart right click the x-axis until the “format axis” option appears.

Click the “Scale” tab

Format the axis to have a minimum of -15 and a maximum of 15

Click OK and format the y-axis the same way.

Translations

Go back to sheet 1, (click the tab at the bottom)

Select the empty cells from E1 to F4 (A blank 4x2 matrix)

Type an = in cell E1

Select the matrix from A1 to B4 (original) then hit + and select A9 to B12 (translation) then simultaneously hit CTL, Shift Enter

A new 4x2 matrix should have been created. (Transformation matrix)

Go to “chart 1”

In the *chart* menu select “ADD DATA”

Now, Click the Sheet 1 tab to go back to sheet 1.

Hilite the new matrix

Click OK

Select categories (x-values) in first column.

click OK

Answer question 1 on the other sheet.

Change the translation matrix so that it shifts the triangle left 5 and up 3.

Excel automatically will change the transformation matrix for you.

Check your answer by looking at chart 1.

Answer question 2 on the other sheet

Scalar multiplication:

In cell E1 change the formula to 5*the original matrix (Hilite the original matrix after the *)

Then press CTL Shift Enter

Look at chart 1

Answer question 3 on the other sheet

Change the formula so that the triangle is half its size.

Answer question 4 on the other sheet

Rotations and reflections:

Type an = in cell E1

To the left of the formula bar click the down arrow and select More functions

Select Math and trig

Select MMULT (Matrix Multiplication)

Click OK

For Array 1 select the original matrix

For Array 2 select the rotation matrix

Simultaneously hit CTL, Shift Enter to change the transformation matrix

Look at chart 1

Answer question 5 on the other sheet

Change the rotation matrix to a reflection matrix as shown

0	1
1	0

Look at chart 1

Answer question 6 on the other sheet

Change the reflection matrix to have -1 's on the diagonal