**Yet more matrix transforms!** Name: .............................................................................

Date: ..............................................................................

1. Multiply out the following matrices. Elements may be left in terms of unknowns *a* and *b*

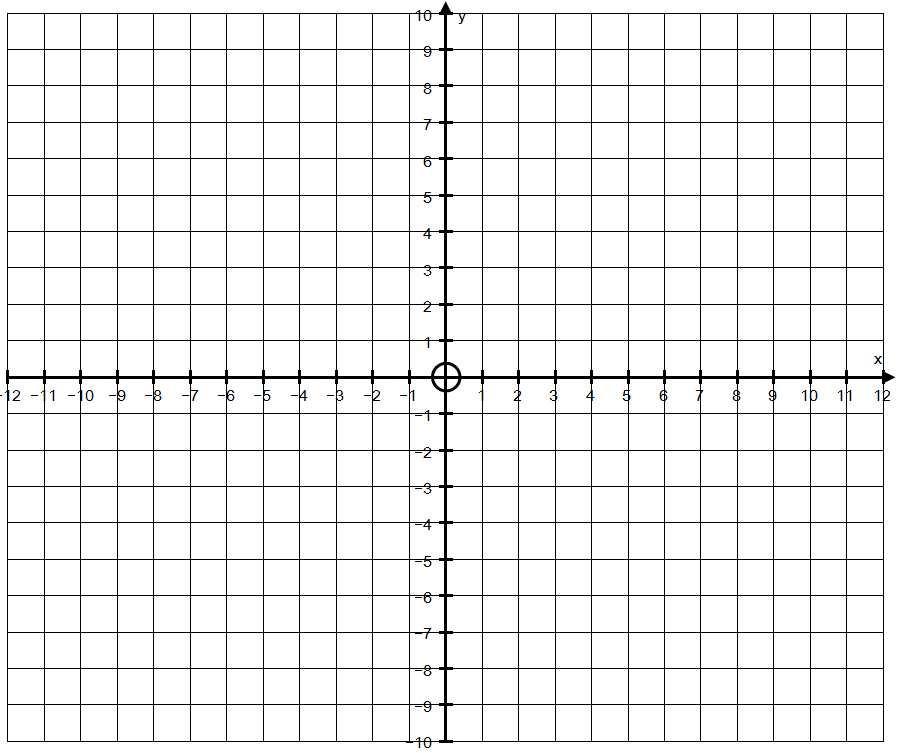
(i) 2

(ii)

(iii)

2. Vertices A,B,C,D of a shape in (x,y) coordinates are collected together in a 2 x 4 matrix

(a) Plot the shape on the axes below and label all vertices [2 marks]



(b) A matrix transformation has form

Evaluate to 2.d.p the elements of and therefore work out  **.** Plot this on the graph above. Describe in words the transformation.

(ii) Calculate and plot iton the graph above.

(iii) Work out what value of *n* results in

i.e. the effect of *n* applications of transformation on brings themback to where they started. Write down in this case and name this special transformation!

(v) Without evaluating the matrices, describe the transformations

(i)

(ii)

(iii)

3) Using 'red and blue basis vector diagrams' derive matrices which represent the following transformations

(i) Reflection in the y = x , then enlargement scale factor -3 about the origin

(ii) Reflection in the y = -x, then a stretch of scale factor 3 parallel to the y axis and -0.5 parallel to the x axis.

4) Consider the matrices below

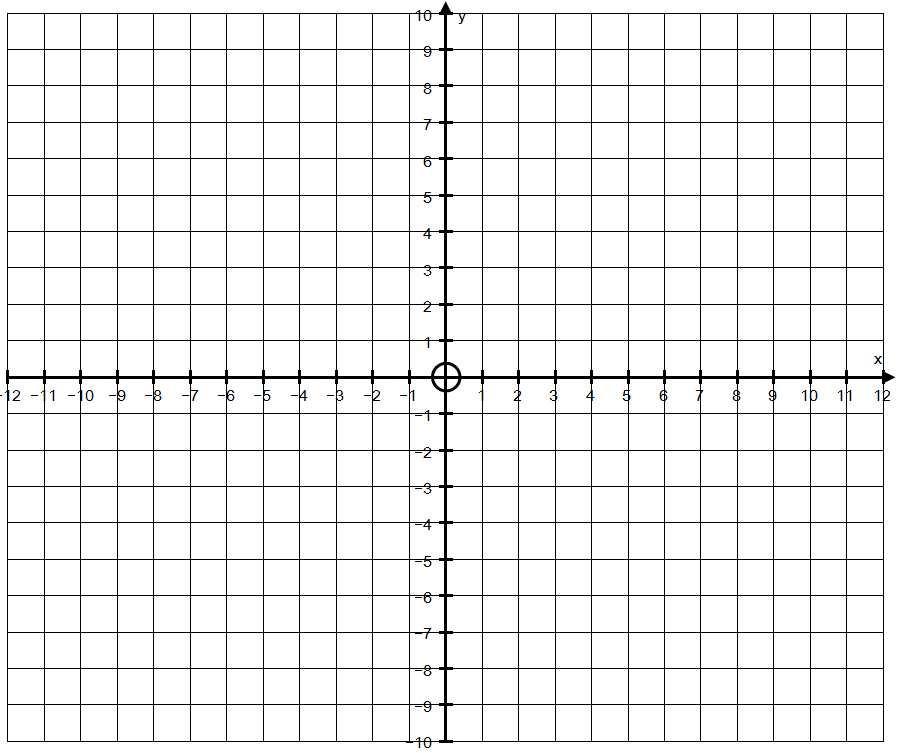
Work out the following in stages and plot each result on the graph below:

1.

2.

3.

4.



Describe the transformation

What does a transformation of the form allow us to do in general?