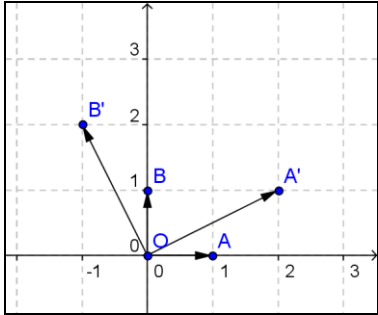
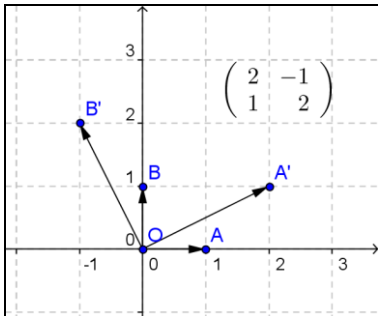
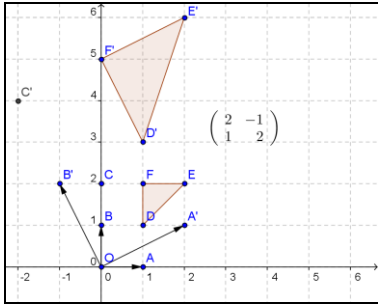


MEI How to Guides for GeoGebra

Creating a transformation matrix from the image of $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$ and $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$

<p>Adding points for $\begin{pmatrix} 1 \\ 0 \end{pmatrix}$ and $\begin{pmatrix} 0 \\ 1 \end{pmatrix}$ and their images</p> <ol style="list-style-type: none"> 1 In the Input bar enter: $O=(0,0)$, $A=(1,0)$ and $B=(0,1)$ 2 Right-click on each of O, A and B, select properties and enable "Fix Object". 3 In the Input bar enter $A'=(2,1)$ and $B'=(-1,2)$ (any points can be used for these). 4 Use "Vector between two points" (3rd menu) to create vectors OA, OB, OA' and OB'. 	
<p>Creating the transformation matrix</p> <ol style="list-style-type: none"> 5 In the Input bar enter: $a=x(A')$, $b=y(A')$, $c=x(B')$ and $d=y(B')$ 6 In the Input bar enter $M=\{\{a,c\},\{b,d\}\}$ 7 Insert a text box (10th menu), select M from the Objects menu and enable LaTeX formula. 	
<p>Apply the matrix to a point or shape</p> <ol style="list-style-type: none"> 9 Add a new point (2nd menu), C. 10 In the input bar enter: $C'=M*C$ 11 Create a shape: e.g. to create the triangle poly1 add points D, E and F, select "Polygon" (5th menu) and then click on each of the points D, E and F (and D again to complete it). 12 In the input bar enter: ApplyMatrix[M,poly1] 	

View on GeoGebraTube: <https://tube.geogebra.org/material/show/id/218249>