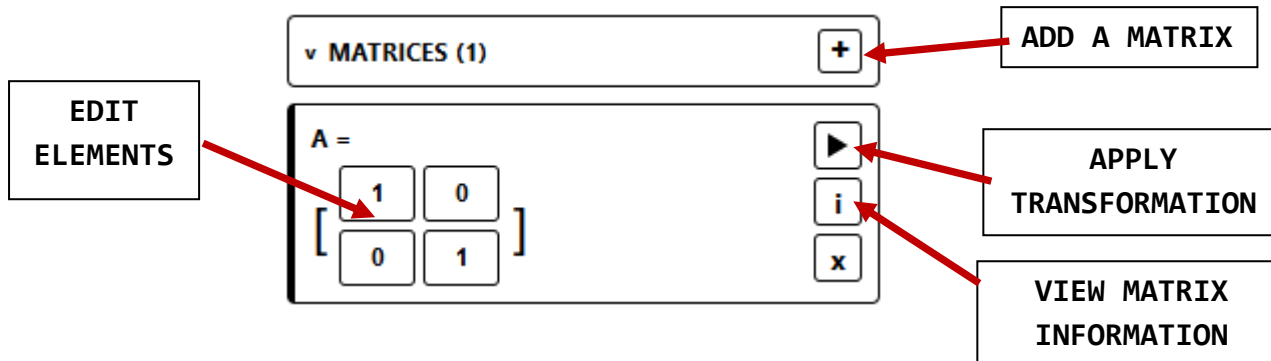


Investigating 2D Matrix Transformations



- Open Vectorama (www.korovatron.co.uk/vectorama)
- Switch to **2D**, and set the vector display mode to **POINT**
- Click the **+ADD** button and add the **UNIT SQUARE** from the **VECTOR PRESETS**.



Find a **2x2** matrix that represents each of the following transformations.

You may need to reset the **UNIT SQUARE** between transformations, by adding a new one.

<p>Rotation 90° anticlockwise about the origin</p> $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$	<p>Reflection in the line $x = 0$</p> $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$	<p>Enlargement, scale factor 2 about the origin</p> $\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$	<p>Rotation 180° anticlockwise about the origin</p> $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$
<p>Reflection in the line $y = 0$</p> $\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$	<p>Enlargement, scale factor 3 about the origin</p> $\begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix}$	<p>Rotation 270° anticlockwise about the origin</p> $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$	<p>Reflection in the line $y = x$</p> $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$
<p>Enlargement, scale factor 0.5 about the origin</p> $\begin{pmatrix} 0.5 & 0 \\ 0 & 0.5 \end{pmatrix}$	<p>Reflection in the line $y = -x$</p> $\begin{pmatrix} 0 & -1 \\ -1 & 0 \end{pmatrix}$	<p>Enlargement, scale factor -2 about the origin</p> $\begin{pmatrix} -2 & 0 \\ 0 & -2 \end{pmatrix}$	<p>Rotation 90° clockwise about the origin</p> $\begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$