**7D Multiple Transformations**

1. The points A(1,0), B(0,1) and C(2,0) are the vertices of a triangle T. The triangle T is rotated 90° anticlockwise around (0,0) and then the image T’ is reflected in the line y = x to obtain the triangle T’’.
2. On separate diagrams, draw T, T’ and T’’
3. i) Find the matrix **P** such that **P**(T) = T’

ii) Find the matrix **Q** such that **Q**(T’) = T’’

1. By finding a matrix product, find the single matrix that will perform a 90° anticlockwise rotation followed by a reflection in y = x
2. The following matrices represent three different transformations:

$$R=\left[\begin{matrix}3&7\\-1&-2\end{matrix}\right]$$

$$Q=\left[\begin{matrix}1&2\\0&1\end{matrix}\right]$$

$$P=\left[\begin{matrix}1&1\\2&3\end{matrix}\right]$$

Find the matrix representing the transformation represented by **R**, followed by **Q**, followed by **P** and give a geometrical interpretation of this transformation.

1. $M=\left[\begin{matrix}-2\sqrt{2}&-2\sqrt{2}\\2\sqrt{2}&-2\sqrt{2}\end{matrix}\right]$

The matrix $M$ represents an enlargement with scale factor $k$ followed by an anticlockwise rotation through angle $θ$ about the origin.

1. Find the value of $k$
2. Find the value of $θ$