

Fill in the Blanks

3D Linear Transformations

Matrix	Description of Transformation	Object Point A	Matrix Calculation	Image Point A'
$\begin{pmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ -1 & 0 & 0 \end{pmatrix}$	Rotation of 90° anti-clockwise about the y-axis	(5, -2, 3)		
$\begin{pmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$		(4, 0, 1)	$\begin{pmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} 4 \\ 0 \\ 1 \end{pmatrix} = \begin{pmatrix} -4 \\ 0 \\ 1 \end{pmatrix}$	
	Reflection in the plane $z = 0$	(-2, 4, -1)		
	Rotation of 90° anti-clockwise about the z-axis	(2, -6, 0)		
$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & 1 & 0 \end{pmatrix}$		(-3, -1, 5)		
$\begin{pmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$		(a, 3a, -a)		
	Rotation of 270° anti-clockwise about the y-axis	(5, -3, 2)		