SUVA SANGAM COLLEGE

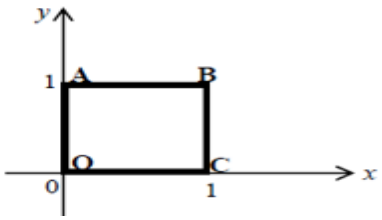
YEAR 12

MATHEMATICS

WORKSHEET 9

Strand 5	**Matrices and Transformation Geometry**
Sub-Strand	**12.4.1 Matrix Transformation- Reflection**
Content Learning Outcome	• Calculate image of the points after matrix transformations • Identify the transformation represented by 2 x 2 matrices • State the invariant features of transformations
Reference from Text	Pg. 168 to 173

Questions

No.	
	CONCEPT IN BRIEF: • The general matrix for Reflection in: ➢ the x-axis is: $\begin{pmatrix}1 & 0\\0 & -1\end{pmatrix}$ ➢ the y-axis is: $\begin{pmatrix}-1 & 0\\0 & 1\end{pmatrix}$
1.	The object has points A(0,0), B(2,0) C (1,1) while the image points A'(0,0), B'(2,0) and C' (1,-1). What transformation does this represent?
	CONCEPT IN BRIEF: Scaler multiplication -to multiply a scalar with a matrix, we simply take the scalar and multiply it to each entry in the matrix. Matrix multiplication -use run and dive method
2.	A point $A(-3,1)$ is transformed by $-N$ to give point $A'$where $N = \begin{pmatrix}-1 & 2\\2 & -4\end{pmatrix}$. Find the coordinates of A'.
	CONCEPT IN BRIEF: Invariant point is the point which does not change.
3.	The figure OABC below is transformed by matrix $N = \begin{pmatrix}1 & 0\\0 & -1\end{pmatrix}$  a) Find the coordinates of O', A', B' and C' the images of O, A, B and D under the transformation by matrix N. b) On the pair of axes given in the answer book draw the images of OABC. c) Describe fully the transformation given by matrix N. d) Name the invariant point of this transformation.