

Matrix Transformations – Section Test

1. What transformation does the matrix $\begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$ represent?

- (a) Rotation through 180° about the origin
- (b) Reflection in the line $y = -x$
- (c) Reflection in the line $y = x$
- (d) Rotation through 90° clockwise about the origin

2. What transformation does the matrix $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$ represent?

- (a) Rotation through 90° clockwise about the origin
- (b) Reflection in the y axis
- (c) Reflection in the x axis
- (d) Rotation through 90° anticlockwise about the origin

3. An enlargement, scale factor 4, centre the origin, is represented by a matrix in its simplest form: $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$

Where a , b , c , and d are integers.

What are the values for a , b , c , and d ?

4. A reflection in the x axis is represented a matrix in its simplest form: $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$

Where a , b , c , and d are integers.

What are the values for a , b , c , and d ?

Questions 5, 6, and 7 are about the matrix: $P = \begin{pmatrix} 2 & 1 \\ 3 & 4 \end{pmatrix}$

5. What is the image of the point $A(2, 0)$ under the transformation represented by P ?

$$A' = (\boxed{}, \boxed{})$$

6. What is the image of the point $B(3, 1)$ under the transformation represented by P ?

$$B' = (\boxed{}, \boxed{})$$

7. What is the image of point $C(-1, 3)$ under the transformation represented by P ?

$$C' = (\boxed{}, \boxed{})$$

In Questions 8-10, the transformation A is represented by the matrix $A = \begin{pmatrix} 2 & 0 \\ -1 & 3 \end{pmatrix}$

and the transformation B is represented by the matrix $B = \begin{pmatrix} 1 & 2 \\ -2 & -3 \end{pmatrix}$

8. The composite transformation “ A followed by B ” is represented by the matrix $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$

Where a , b , c , and d are integers.

What are the values for a , b , c , and d ?

9. The composite transformation “ B followed by A ” is represented by the matrix $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$

Where a , b , c , and d are integers.

What are the values for a , b , c , and d ?

10. The image of the point $(3, 2)$ under the transformation “ A followed by B followed by A again” is given by:

$$(\boxed{}, \boxed{})$$