

Advanced Higher Maths
SQA 2016 Exemplar
Question 11



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- (a) Write down the 2×2 matrix, M_1 , associated with a reflection in the y -axis. 1
- (b) Write down a second 2×2 matrix, M_2 , associated with an anti-clockwise rotation through an angle of $\frac{\pi}{2}$ radians about the origin. 1
- (c) Find the 2×2 matrix, M_3 , associated with an anti-clockwise rotation through $\frac{\pi}{2}$ radians about the origin followed by a reflection in the y -axis. 1
- (d) State the single transformation associated with M_3 . 1
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Answers:

(a) $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$

(b) $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$

(c) $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$

(d) reflection in the line with equation $y = x$