

**AQA – Matrices – A2 Further Mathematics P1**

## 1. June/2020/Paper\_1/No.2

Which one of the matrices below represents a rotation of  $90^\circ$  about the  $x$ -axis?

Circle your answer.

[1 mark]

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & -1 \\ 0 & 1 & 0 \end{bmatrix}$$

## 2. June/2019/Paper\_1/No.7

Three non-singular square matrices, **A**, **B** and **R** are such that

$$\mathbf{AR} = \mathbf{B}$$

The matrix **R** represents a rotation about the  $z$ -axis through an angle  $\theta$  and

$$\mathbf{B} = \begin{bmatrix} -\cos \theta & \sin \theta & 0 \\ \sin \theta & \cos \theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

(a) Show that **A** is independent of the value of  $\theta$ .

[3 marks]

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- (b) Give a full description of the single transformation represented by the matrix **A**.  
[1 mark]

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