

Matrices – 2020 O Level Math D

1. Nov/2020/Paper_11/No.22

$$\mathbf{A} = \begin{pmatrix} 1 & 2 \\ -4 & 3 \end{pmatrix} \quad \mathbf{B} = \begin{pmatrix} 0 & 2 \\ 2 & -3 \end{pmatrix}$$

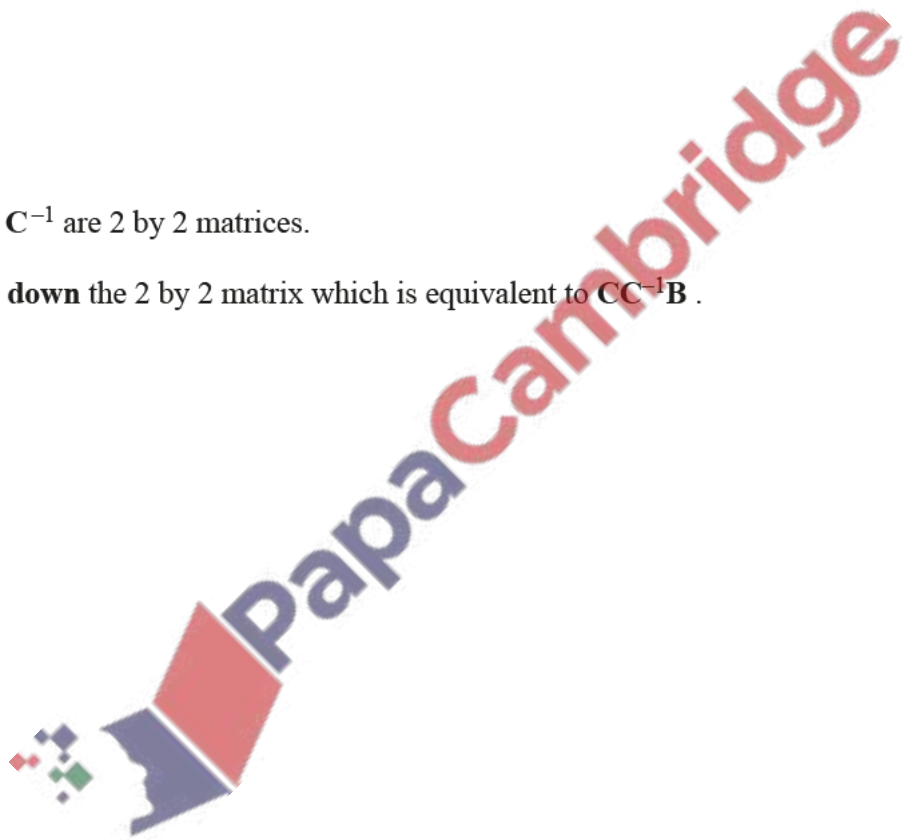
(a) Find \mathbf{AB} .

(b) \mathbf{C} and \mathbf{C}^{-1} are 2 by 2 matrices.

Write down the 2 by 2 matrix which is equivalent to $\mathbf{CC}^{-1}\mathbf{B}$.

$$\begin{pmatrix} & \\ & \end{pmatrix} [2]$$

$$\begin{pmatrix} & \\ & \end{pmatrix} [1]$$



2. Nov/2020/Paper_12/No.24

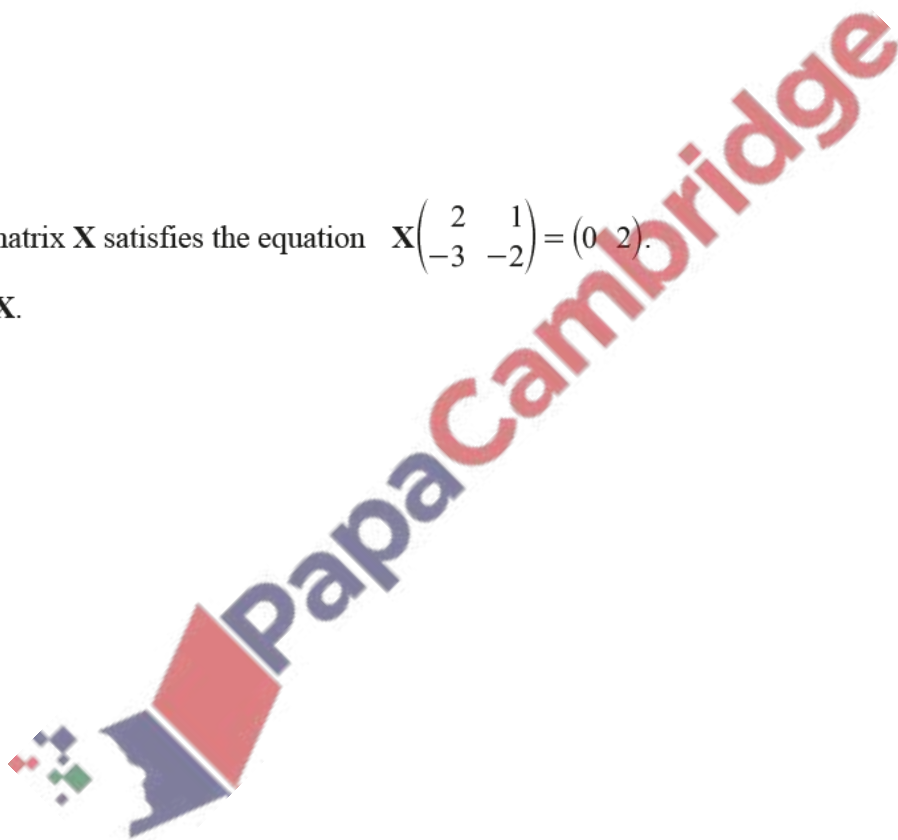
$$\mathbf{A} = \begin{pmatrix} 2 & 1 \\ -3 & -2 \end{pmatrix}$$

(a) Find \mathbf{A}^2 .

(b) The matrix \mathbf{X} satisfies the equation $\mathbf{X} \begin{pmatrix} 2 & 1 \\ -3 & -2 \end{pmatrix} = \begin{pmatrix} 0 & 2 \end{pmatrix}$.

Find \mathbf{X} .

$\left(\quad \right)$ [2]



$\mathbf{X} =$

[2]

$$\mathbf{P} = \begin{pmatrix} 4 & -2 \\ -1 & 3 \end{pmatrix} \quad \mathbf{Q} = \begin{pmatrix} 0 & -1 \\ 5 & 4 \end{pmatrix} \quad \mathbf{R} = \begin{pmatrix} 4 & 1 \\ t & 2 \end{pmatrix}$$

(a) Find $\mathbf{P} - 3\mathbf{Q}$.

$$\begin{pmatrix} & \\ & \end{pmatrix} [2]$$

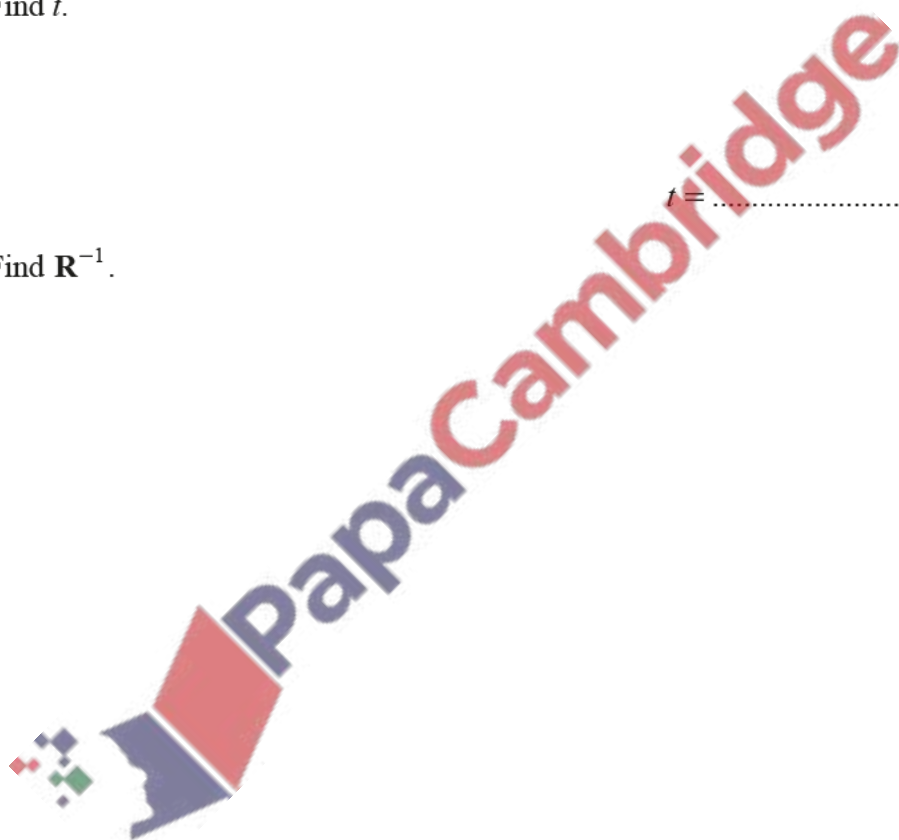
(b) (i) The determinant of \mathbf{R} is 11.

Find t .

$$t = \dots\dots\dots [1]$$

(ii) Find \mathbf{R}^{-1} .

$$\begin{pmatrix} & \\ & \end{pmatrix} [1]$$



$$\mathbf{A} = \begin{pmatrix} 2 & 0 \\ -3 & -1 \end{pmatrix}$$

(a) Evaluate $2\mathbf{A} - \begin{pmatrix} -5 & 4 \\ 0 & 3 \end{pmatrix}$.

$$\begin{pmatrix} & \\ & \end{pmatrix} [2]$$

(b) Find $|\mathbf{A}|$.

..... [1]

(c) Find \mathbf{A}^{-1} .

$$\begin{pmatrix} & \\ & \end{pmatrix} [1]$$

(d) Find the matrix \mathbf{X} , where $\mathbf{XA} = \begin{pmatrix} 4 & -2 \end{pmatrix}$.



$$\mathbf{X} = \quad [2]$$