No.

Date : :

$A = \begin{pmatrix} 2 & 5 \\ 1 & 3 \end{pmatrix}$ $B = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

$AX = B$

$YA = B$

① find X

② find Y

to find A^{-1}:

$$\left(\begin{array}{cc|cc} 2 & 5 & 1 & 0 \\ 1 & 3 & 0 & 1 \end{array}\right)$$

$$\Rightarrow \left(\begin{array}{cc|cc} 1 & 2 & 1 & -1 \\ 1 & 3 & 0 & 1 \end{array}\right)$$

$$\Rightarrow \left(\begin{array}{cc|cc} 1 & 2 & 1 & -1 \\ 0 & 1 & -1 & 2 \end{array}\right)$$

$$\Rightarrow \left(\begin{array}{cc|cc} 1 & 0 & 3 & -5 \\ 0 & 1 & -1 & 2 \end{array}\right)$$

then $A^{-1} = \begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}$

Consider $AX = B$

$\Rightarrow A^{-1}(AX) = A^{-1}B$

$\Rightarrow X = A^{-1}B =$

$\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} = \begin{pmatrix} -12 & -14 \\ 5 & 6 \end{pmatrix}$

Consider $YA = B$

$\Rightarrow (YA)A^{-1} = BA^{-1}$

$\Rightarrow Y = BA^{-1} =$

$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix} = \begin{pmatrix} 1 & -1 \\ 5 & -7 \end{pmatrix}$