If $A = \begin{pmatrix} 1 & 2 \\ 3 & -5 \end{pmatrix}$ & $B = \begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix}$ and X be a matrix such that $A = BX$, then X is equal to :

Solution:

$$A = BX$$

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

$$X = \frac{1}{2}\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 1 & 2 \\ 3 & -5 \end{pmatrix}$$

$$\Rightarrow X = \frac{1}{2}\begin{pmatrix} 2 & 4 \\ 3 & -5 \end{pmatrix}$$

Since, $|B| \neq 0$

$$B^{-1} = \frac{adj(B)}{|B|}$$

$$adj(B) = \begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$$

A $\frac{1}{2}\begin{pmatrix} 2 & 4 \\ 3 & -5 \end{pmatrix}$

B $\frac{1}{2}\begin{pmatrix} -2 & 4 \\ 3 & 5 \end{pmatrix}$

C $\begin{pmatrix} 2 & 4 \\ 3 & -5 \end{pmatrix}$

D $\begin{pmatrix} -2 & 4 \\ 3 & 5 \end{pmatrix}$

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