This matrix is invertible (you don't need to show this):

$$A = \begin{bmatrix} 1 & 0 & 2 & -1 \\ 2 & 0 & 1 & 2 \\ 7 & 4 & 3 & 5 \\ -1 & 0 & 2 & 1 \end{bmatrix}$$

Write down the **third column** of A^{-1}.

(Hint: You don't need to calculate A^{-1}. Look carefully at the columns of A.)

$A \cdot \text{col}_1(A^{-1}) = \text{col}_1(I_4)$

$A \cdot \text{col}_3(A^{-1}) = \text{col}_3(I_3)$

$A\ \vec{x} = \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$

$0\,\text{col}_1(A) + \frac{1}{4}\cdot\text{col}_2(A) + 0\cdot\text{col}_3(A) + 0\cdot\text{col}_4(A) = \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$

$$\vec{x} = \begin{bmatrix} 0 \\ 1/4 \\ 0 \\ 0 \end{bmatrix}$$