5.4.1

ADUDOTLA SRIVIDYA-EE25BTECH11006

September 27,2025

Question

Using elementary transformations, find the inverse of the following matrix.

$$\begin{pmatrix} 2 & 3 \\ -4 & -6 \end{pmatrix}$$

Theoretical Solution

using row reductions:

$$\begin{pmatrix} 2 & 3 \\ -4 & -6 \end{pmatrix} \xrightarrow{R_2 \to \frac{R_2}{-2}} \begin{pmatrix} 2 & 3 \\ 2 & 3 \end{pmatrix} \tag{1}$$

$$R_2 \to R_2 - R_1 \implies \begin{pmatrix} 2 & 3 \\ 0 & 0 \end{pmatrix} \tag{2}$$

since one row becomes zero, the matrix cannot be reduced to the identity matrix

conclusion

Hence, the given matrix is **not invertible**.

Python,C,Python+C codes

codes permalink