

Matrices and Determinants - Class XII

Related Questions with Solutions

Questions

Question: 01

Let A be a square matrix all of whose entries are integers. Then which one of the following is true?

- A. If $\det A = \pm 1$, then A^{-1} need not exist
- B. If $\det A = \pm 1$, then A^{-1} exists but all its entries are not necessarily integers
- C. If $\det A \neq \pm 1$, then A^{-1} exists and all its entries are non-integers
- D. If $\det A = \pm 1$, then A^{-1} exists and all its entries are integers

Solutions

Solution: 01

Each entry of A is an integer, so the cofactor of every entry is an integer and so each entry of adjoint is an integer.

Also $\det A = \pm 1$ and we know that

$$A^{-1} = \frac{1}{\det A} (\text{adj } A)$$

This means all entries in A^{-1} are integers.

Correct Options

Answer:01

Correct Options: D