

6C Determinants

Identity Matrices:

I_2

I_3

Determinants for a 2x2 Matrix

1. Given that $A = \begin{bmatrix} 6 & 5 \\ 1 & 2 \end{bmatrix}$, find $\det A$

2. Given that A is singular, find the value of p if (singular means $\det A = 0$)

$$A = \begin{bmatrix} 4 & p + 2 \\ -1 & 3 - p \end{bmatrix}$$

Determinants for a 3x3 Matrix

3. Find the minor of the element 2 in the matrix:

$$\begin{bmatrix} 5 & 0 & 2 \\ -1 & 8 & 1 \\ 6 & 7 & 3 \end{bmatrix}$$

4. Find the value of $\begin{vmatrix} 1 & 2 & 4 \\ 3 & 2 & 1 \\ -1 & 4 & 3 \end{vmatrix}$

Using a calculator to find determinants:

5. The matrix $A = \begin{bmatrix} 3 & k & 0 \\ -2 & 1 & 2 \\ 5 & 0 & k+3 \end{bmatrix}$, where k is a constant.

a) Find $\det A$ in terms of k

b) Given that A is singular, find the possible values of k