

Linear Algebra

MA 242 (Spring 2013)

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DETERMINANT

– definition and formulas –

Let $A = (a_{ij})_{i,j=1,\dots,n}$ be an $n \times n$ matrix.

- **(i, j) -cofactor:**

$$C_{ij} = (-1)^{i+j} \det(A_{ij})$$

where

$$A_{ij} =$$

- **Cofactor expansion of the determinant across row number i :**

$$\det(A) = a_{i1}C_{i1} + \dots + a_{in}C_{in}$$

- **Cofactor expansion of the determinant across column number j :**

$$\det(A) = a_{1j}C_{1j} + \dots + a_{nj}C_{nj}$$

NOTE: There is a different way of defining the determinant that is not recursive!

- **Special formula for $n = 2$:**

- **Special formula for $n = 3$:**

- **Special formula for triangular matrices:**