

$A_n:$

$$\begin{vmatrix} x & y & 1 \\ 1 & 2 & 1 \\ 3 & 6 & 1 \end{vmatrix} = 0$$

$$x \begin{vmatrix} 2 & 1 \\ 6 & 1 \end{vmatrix} - y \begin{vmatrix} 1 & 1 \\ 3 & 1 \end{vmatrix} + 1 \begin{vmatrix} 1 & 2 \\ 3 & 6 \end{vmatrix} = 0$$

Q. Find equations of line joining

$(3,1)$ & $(9,3)$ using determinant

Minors and Co-factors

Consider $\begin{vmatrix} 1 & 3 \\ 2 & 4 \end{vmatrix}$

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Minors (M_{ij})

co-factor (A_{ij})

Minor of 1 $(M_{11}) = 4$

co-factor $(A_{11}) = (-1)^{1+1} \times M_{11}$

$$= 1 \times 4 = 4$$

Minor of 3 $(M_{12}) = 2$

co-factor $(A_{12}) = (-1)^{1+2} \times M_{12}$

$$= -1 \times 2 = -2$$

Minor of 2 $(M_{21}) = 3$

co-factor $(A_{21}) = (-1)^{2+1} \times M_{21}$

$$= -1 \times 3 = -3$$

Minor of 4 $(M_{22}) = 1$

co-factor $(A_{22}) = (-1)^{2+2} \times M_{22}$

$$= 1 \times 1 = 1$$

co-factor matrix of

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