行列式值（determinant）

2×2

$$\det(A) = ad - bc \quad \text{or} \quad \begin{vmatrix} a & b \\ c & d \end{vmatrix} = ad - bc$$

$$A^{-1} = \frac{1}{\det(A)} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

令 $A = \begin{bmatrix} 3 & 1 & -4 \\ 2 & 5 & 6 \\ 1 & 4 & 8 \end{bmatrix}$

a_{11} 子行列式值 $= M_{11} = \begin{vmatrix} 5 & 6 \\ 4 & 8 \end{vmatrix}$

a_{11} 餘因子 $= C_{11} = (-1)^{1+1} M_{11} = M_{11} = 40 - 24 = 16$

（上、下、對角矩陣的 determinant 為對角乘積）

3×3 determinant 快速求法

$$A=\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \begin{matrix} a_{11} & a_{12} \\ a_{21} & a_{22} \\ a_{31} & a_{32} \end{matrix}$$

$$\Rightarrow \det(A)=(a_{11}a_{22}a_{33}+a_{12}a_{23}a_{31}+a_{13}a_{21}a_{32}) - a_{13}a_{22}a_{31}-a_{11}a_{23}a_{32}-a_{12}a_{21}a_{33})$$