> $with(LinearAlgebra):$

> # First express the matrix (N=2)

> $A := Matrix([[a, b, e, f], [c, d, g, h], [0, 0, i, j], [0, 0, k, l]])$

$$A := \begin{bmatrix} a & b & e & f \\ c & d & g & h \\ 0 & 0 & i & j \\ 0 & 0 & k & l \end{bmatrix} \tag{1}$$

> $Determinant(A)$

$$a\,d\,i\,l - a\,d\,j\,k - b\,c\,i\,l + b\,c\,j\,k \tag{2}$$

> # This is the answer, the only thing now is to identify the result

> $det\_a := a \cdot d - c \cdot b$

$$det\_a := a\,d - c\,b \tag{3}$$

> $det\_b := e \cdot h - g \cdot f$

$$det\_b := e\,h - g\,f \tag{4}$$

> $det\_c := i \cdot l - k \cdot j$

$$det\_c := i\,l - k\,j \tag{5}$$

> $expand(det\_a \cdot det\_c)$

$$a\,d\,i\,l - a\,d\,j\,k - b\,c\,i\,l + b\,c\,j\,k \tag{6}$$

> # Look, same answer, thus it can be done like this.