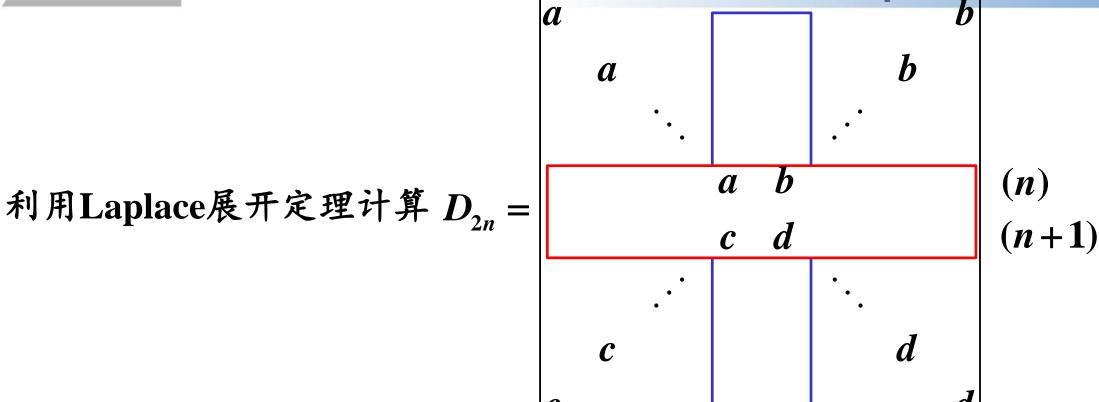


[解析]

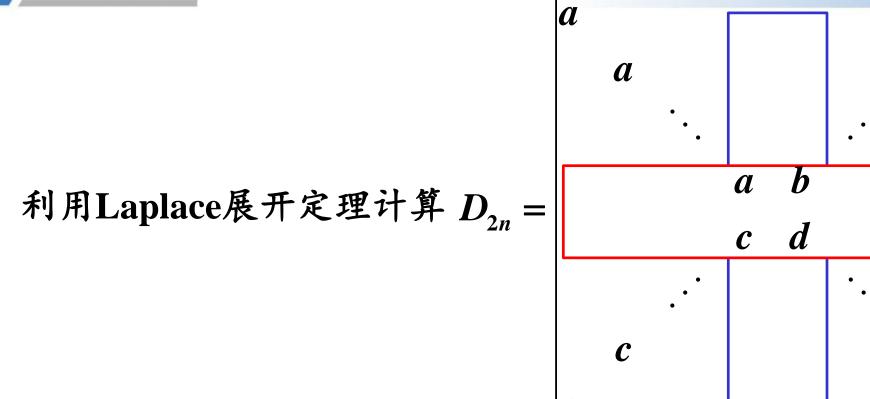
Laplace展开定理是将按一行(列)展开的定理推广到按k行或列展开的方法,其共涉及到 C_n^k 个子式及其对应的代数余子式,因此当所选取的k行中为0的子式比较多时,比较好用。



[解析]

注意到该行列式中第n和n+1行,所涉及的所有 C_{2n}^2 个2阶子式中只有第n和n+1列所对应的2阶子式不为0,因此按此展开可得:

$$D_{2n} = \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot (-1)^{(n+n+1)+(n+n+1)} D_{2n-2}$$



(n)

(n+1)

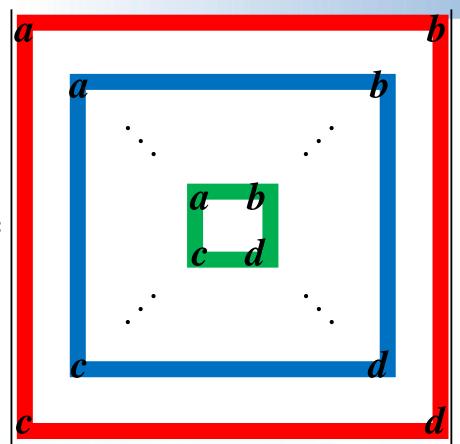
[解析]

对 D_{2n-2} 继续展开到 2 阶为止可得:

$$D_{2n} = \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot D_{2n-2} = \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot L \cdot \begin{vmatrix} a & b \\ c & d \end{vmatrix} = \begin{vmatrix} a & b \\ c & d \end{vmatrix}^n = (ad - bc)^n$$

线性代数与空间解析几何

利用Laplace展开定理计算 D_{2n} =



[解析]

实际上也可每次按第一、最后一行展开:

$$D_{2n} = \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot \begin{vmatrix} a & b \\ c & d \end{vmatrix} \cdot \mathbf{L} \cdot \begin{vmatrix} a & b \\ c & d \end{vmatrix} = \begin{vmatrix} a & b \\ c & d \end{vmatrix}^n = (ad - bc)^n$$