$$|\mathbf{I} + \epsilon\,\mathbf{M}| = \begin{vmatrix} 1 + \epsilon\,M_{11} & \epsilon & & & 1 \\ \epsilon_{2} & 1 + \epsilon\,M_{22} & \epsilon\,M_{32} & \epsilon\,M_{42} & \epsilon\,M_{52} \\ \epsilon_{3} & \epsilon\,M_{23} & 1 + \epsilon\,M_{33} & \epsilon\,M_{43} & \epsilon\,M_{53} \\ \epsilon_{4} & \epsilon\,M_{24} & \epsilon\,M_{34} & 1 + \epsilon\,M_{44} & \epsilon\,M_{54} \\ \epsilon_{5} & \epsilon\,M_{25} & \epsilon\,M_{35} & \epsilon\,M_{45} & 1 + \epsilon\,M_{55} \end{vmatrix}$$

$$= (1 + \epsilon\,M_{11})\,C_{11}$$