

$$\left\{ \begin{array}{l} a_{11}^2 + a_{21}a_{22} + a_{31}a_{33} = 0, a_{11}a_{12} + a_{22}^2 + a_{32}a_{33} = 0, a_{11}a_{13} + a_{22}a_{23} + a_{33}^2 = 0, a_{21}a_{22}a_{11}^2 + a_{31}a_{33}a_{11}^2 - a_{13}a_{31}^2a_{11} - a_{11}a_{12}a_{21}^2 + a_{21}a_{22}a_{31}a_{33} - a_{21}a_{23}a_{31}a_{32} = 0, a_{21}a_{22} \end{array} \right.$$