

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