Matrices combinadas

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Matriz simetrica de orden 4

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} & a_{14} \\ a_{12} & a_{22} & a_{23} & a_{24} \\ a_{13} & a_{23} & a_{33} & a_{34} \\ a_{14} & a_{24} & a_{34} & a_{44} \end{bmatrix}$$

Matriz congruente

$$\begin{bmatrix} 1 & \frac{a_{12}}{\sqrt{a_{11}}\sqrt{a_{22}}} & \frac{a_{13}}{\sqrt{a_{11}}\sqrt{a_{33}}} & \frac{a_{14}}{\sqrt{a_{11}}\sqrt{a_{44}}} \\ \frac{a_{12}}{\sqrt{a_{11}}\sqrt{a_{22}}} & 1 & \frac{a_{23}}{\sqrt{a_{22}}\sqrt{a_{33}}} & \frac{a_{24}}{\sqrt{a_{22}}\sqrt{a_{44}}} \\ \frac{a_{13}}{\sqrt{a_{11}}\sqrt{a_{33}}} & \frac{a_{23}}{\sqrt{a_{22}}\sqrt{a_{33}}} & 1 & \frac{a_{34}}{\sqrt{a_{33}}\sqrt{a_{44}}} \\ \frac{a_{14}}{\sqrt{a_{11}}\sqrt{a_{44}}} & \frac{a_{24}}{\sqrt{a_{22}}\sqrt{a_{44}}} & \frac{a_{34}}{\sqrt{a_{33}}\sqrt{a_{44}}} & 1 \end{bmatrix}$$

Submatrices de orden 2

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{12} & a_{22} \end{bmatrix} \qquad a_{11}a_{22} - a_{12}^2$$

$$\begin{bmatrix} a_{11} & a_{13} \\ a_{12} & a_{23} \end{bmatrix} \qquad a_{11}a_{23} - a_{12}a_{13}$$

$$\begin{bmatrix} a_{11} & a_{14} \\ a_{12} & a_{24} \end{bmatrix} \qquad a_{11}a_{24} - a_{12}a_{14}$$

$$\begin{bmatrix} a_{12} & a_{13} \\ a_{22} & a_{23} \end{bmatrix} \qquad a_{12}a_{23} - a_{13}a_{22}$$

$$\begin{bmatrix} a_{12} & a_{14} \\ a_{22} & a_{24} \end{bmatrix} \qquad a_{12}a_{24} - a_{14}a_{22}$$

$$\begin{bmatrix} a_{13} & a_{14} \\ a_{23} & a_{24} \end{bmatrix} \qquad a_{13}a_{24} - a_{14}a_{23}$$

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{13} & a_{23} \end{bmatrix} \qquad a_{11}a_{23} - a_{12}a_{13}$$

$$\begin{bmatrix} a_{11} & a_{13} \\ a_{13} & a_{33} \end{bmatrix} \qquad a_{11}a_{33} - a_{13}^2$$

$$\begin{bmatrix} a_{11} & a_{14} \\ a_{13} & a_{34} \end{bmatrix} \qquad a_{11}a_{34} - a_{13}a_{14}$$

$$\begin{bmatrix} a_{12} & a_{13} \\ a_{23} & a_{33} \end{bmatrix} \qquad a_{12}a_{33} - a_{13}a_{23}$$

$$\begin{bmatrix} a_{12} & a_{14} \\ a_{23} & a_{34} \end{bmatrix} \qquad a_{12}a_{34} - a_{14}a_{23}$$

$$\begin{bmatrix} a_{13} & a_{14} \\ a_{33} & a_{34} \end{bmatrix} \qquad a_{13}a_{34} - a_{14}a_{33}$$

$$\begin{bmatrix} a_{11} & a_{12} \\ a_{14} & a_{24} \end{bmatrix} \qquad a_{11}a_{24} - a_{12}a_{14}$$

$$\begin{bmatrix} a_{11} & a_{13} \\ a_{14} & a_{34} \end{bmatrix} \qquad a_{11}a_{34} - a_{13}a_{14}$$

$$\begin{bmatrix} a_{11} & a_{14} \\ a_{14} & a_{44} \end{bmatrix} \qquad a_{11}a_{44} - a_{14}^2$$

$$\begin{bmatrix} a_{12} & a_{13} \\ a_{24} & a_{34} \end{bmatrix} \qquad a_{12}a_{34} - a_{13}a_{24}$$

$$\begin{bmatrix} a_{12} & a_{14} \\ a_{24} & a_{44} \end{bmatrix} \qquad a_{12}a_{44} - a_{14}a_{24}$$

$$\begin{bmatrix} a_{13} & a_{14} \\ a_{34} & a_{44} \end{bmatrix} \qquad a_{13}a_{44} - a_{14}a_{34}$$

$$\begin{bmatrix} a_{12} & a_{22} \\ a_{13} & a_{23} \end{bmatrix} \qquad a_{12}a_{23} - a_{13}a_{22}$$

$$\begin{bmatrix} a_{12} & a_{23} \\ a_{13} & a_{33} \end{bmatrix} \qquad a_{12}a_{33} - a_{13}a_{23}$$

$$\begin{bmatrix} a_{12} & a_{24} \\ a_{13} & a_{34} \end{bmatrix} \qquad a_{12}a_{34} - a_{13}a_{24}$$

$$\begin{bmatrix} a_{22} & a_{23} \\ a_{23} & a_{33} \end{bmatrix} \qquad a_{22}a_{33} - a_{23}^2$$

$$\begin{bmatrix} a_{22} & a_{24} \\ a_{23} & a_{34} \end{bmatrix} \qquad a_{22}a_{34} - a_{23}a_{24}$$

$$\begin{bmatrix} a_{23} & a_{24} \\ a_{33} & a_{34} \end{bmatrix} \qquad a_{23}a_{34} - a_{24}a_{33}$$

$$\begin{bmatrix} a_{12} & a_{22} \\ a_{14} & a_{24} \end{bmatrix} \qquad a_{12}a_{24} - a_{14}a_{22}$$

$$\begin{bmatrix} a_{12} & a_{23} \\ a_{14} & a_{34} \end{bmatrix} \qquad a_{12}a_{34} - a_{14}a_{23}$$

$$\begin{bmatrix} a_{12} & a_{24} \\ a_{14} & a_{44} \end{bmatrix} \qquad a_{12}a_{44} - a_{14}a_{24}$$

$$\begin{bmatrix} a_{22} & a_{23} \\ a_{24} & a_{34} \end{bmatrix} \qquad a_{22}a_{34} - a_{23}a_{24}$$

$$\begin{bmatrix} a_{22} & a_{24} \\ a_{24} & a_{44} \end{bmatrix} \qquad a_{22}a_{44} - a_{24}^2$$

$$\begin{bmatrix} a_{23} & a_{24} \\ a_{34} & a_{44} \end{bmatrix} \qquad a_{23}a_{44} - a_{24}a_{34}$$

$$\begin{bmatrix} a_{13} & a_{23} \\ a_{14} & a_{24} \end{bmatrix} \qquad a_{13}a_{24} - a_{14}a_{23}$$

$$\begin{bmatrix} a_{13} & a_{33} \\ a_{14} & a_{34} \end{bmatrix} \qquad a_{13}a_{34} - a_{14}a_{33}$$

$$\begin{bmatrix} a_{13} & a_{34} \\ a_{14} & a_{44} \end{bmatrix} \qquad a_{13}a_{44} - a_{14}a_{34}$$

$$\begin{bmatrix} a_{23} & a_{33} \\ a_{24} & a_{34} \end{bmatrix} \qquad a_{23}a_{34} - a_{24}a_{33}$$

$$\begin{bmatrix} a_{23} & a_{34} \\ a_{24} & a_{44} \end{bmatrix} \qquad a_{23}a_{44} - a_{24}a_{34}$$

$$\begin{bmatrix} a_{33} & a_{34} \\ a_{34} & a_{44} \end{bmatrix} \qquad a_{33}a_{44} - a_{34}^2$$

Submatrices de orden 3

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{12} & a_{22} & a_{23} \\ a_{13} & a_{23} & a_{33} \end{bmatrix} \qquad a_{11}a_{22}a_{33} - a_{11}a_{23}^2 - a_{12}^2a_{33} + 2a_{12}a_{13}a_{23} - a_{13}^2a_{22}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{14} \\ a_{12} & a_{22} & a_{24} \\ a_{13} & a_{23} & a_{34} \end{bmatrix} \qquad a_{11}a_{22}a_{34} - a_{11}a_{23}a_{24} - a_{12}^2a_{34} + a_{12}a_{13}a_{24} + a_{12}a_{14}a_{23} - a_{13}a_{14}a_{22}$$

$$\begin{bmatrix} a_{11} & a_{13} & a_{14} \\ a_{12} & a_{23} & a_{24} \\ a_{13} & a_{33} & a_{34} \end{bmatrix} \qquad a_{11}a_{23}a_{34} - a_{11}a_{24}a_{33} - a_{12}a_{13}a_{34} + a_{12}a_{14}a_{33} + a_{13}^2a_{24} - a_{13}a_{14}a_{23}$$

$$\begin{bmatrix} a_{12} & a_{13} & a_{14} \\ a_{22} & a_{23} & a_{24} \\ a_{23} & a_{33} & a_{34} \end{bmatrix} \qquad a_{12}a_{23}a_{34} - a_{12}a_{24}a_{33} - a_{13}a_{22}a_{34} + a_{13}a_{23}a_{24} + a_{14}a_{22}a_{33} - a_{14}a_{23}^2$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{12} & a_{22} & a_{23} \\ a_{14} & a_{24} & a_{34} \end{bmatrix} \qquad a_{11}a_{22}a_{34} - a_{11}a_{23}a_{24} - a_{12}^2a_{34} + a_{12}a_{13}a_{24} + a_{12}a_{14}a_{23} - a_{13}a_{14}a_{22}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{14} \\ a_{12} & a_{22} & a_{24} \\ a_{14} & a_{24} & a_{44} \end{bmatrix} \qquad a_{11}a_{22}a_{44} - a_{11}a_{24}^2 - a_{12}^2a_{44} + 2a_{12}a_{14}a_{24} - a_{14}^2a_{22}$$

$$\begin{bmatrix} a_{11} & a_{13} & a_{14} \\ a_{12} & a_{23} & a_{24} \\ a_{14} & a_{34} & a_{44} \end{bmatrix} \qquad a_{11}a_{23}a_{44} - a_{11}a_{24}a_{34} - a_{12}a_{13}a_{44} + a_{12}a_{14}a_{34} + a_{13}a_{14}a_{24} - a_{14}^2a_{23}$$

$$\begin{bmatrix} a_{12} & a_{13} & a_{14} \\ a_{22} & a_{23} & a_{24} \\ a_{24} & a_{34} & a_{44} \end{bmatrix} \qquad a_{12}a_{23}a_{44} - a_{12}a_{24}a_{34} - a_{13}a_{22}a_{44} + a_{13}a_{24}^2 + a_{14}a_{22}a_{34} - a_{14}a_{23}a_{24}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{13} & a_{23} & a_{33} \\ a_{14} & a_{24} & a_{34} \end{bmatrix} \qquad a_{11}a_{23}a_{34} - a_{11}a_{24}a_{33} - a_{12}a_{13}a_{34} + a_{12}a_{14}a_{33} + a_{13}^2a_{24} - a_{13}a_{14}a_{23}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{14} \\ a_{13} & a_{23} & a_{34} \\ a_{14} & a_{24} & a_{44} \end{bmatrix}$$

$$a_{11}a_{23}a_{44} - a_{11}a_{24}a_{34} - a_{12}a_{13}a_{44} + a_{12}a_{14}a_{34} + a_{13}a_{14}a_{24} - a_{14}^2 a_{23}$$

$$\begin{bmatrix} a_{11} & a_{13} & a_{14} \\ a_{13} & a_{33} & a_{34} \\ a_{14} & a_{34} & a_{44} \end{bmatrix}$$

$$a_{11}a_{33}a_{44} - a_{11}a_{34}^2 - a_{13}^2 a_{44} + 2a_{13}a_{14}a_{34} - a_{14}^2 a_{33}$$

$$\begin{bmatrix} a_{12} & a_{13} & a_{14} \\ a_{23} & a_{33} & a_{34} \\ a_{24} & a_{34} & a_{44} \end{bmatrix}$$

$$a_{12}a_{33}a_{44} - a_{12}a_{34}^2 - a_{13}a_{23}a_{44} + a_{13}a_{24}a_{34} + a_{14}a_{23}a_{34} - a_{14}a_{24}a_{33}$$

$$\begin{bmatrix} a_{12} & a_{22} & a_{23} \\ a_{13} & a_{23} & a_{33} \\ a_{14} & a_{24} & a_{34} \end{bmatrix}$$

$$a_{12}a_{23}a_{34} - a_{12}a_{24}a_{33} - a_{13}a_{22}a_{34} + a_{13}a_{23}a_{24} + a_{14}a_{22}a_{33} - a_{14}a_{23}^2$$

$$\begin{bmatrix} a_{12} & a_{22} & a_{24} \\ a_{13} & a_{23} & a_{34} \\ a_{14} & a_{24} & a_{44} \end{bmatrix}$$

$$a_{12}a_{23}a_{44} - a_{12}a_{24}a_{34} - a_{13}a_{22}a_{44} + a_{13}a_{24}^2 + a_{14}a_{22}a_{34} - a_{14}a_{23}a_{24}$$

$$\begin{bmatrix} a_{12} & a_{23} & a_{24} \\ a_{13} & a_{33} & a_{34} \\ a_{14} & a_{34} & a_{44} \end{bmatrix}$$

$$a_{12}a_{33}a_{44} - a_{12}a_{34}^2 - a_{13}a_{23}a_{44} + a_{13}a_{24}a_{34} + a_{14}a_{23}a_{34} - a_{14}a_{24}a_{33}$$

$$\begin{bmatrix} a_{22} & a_{23} & a_{24} \\ a_{23} & a_{33} & a_{34} \\ a_{24} & a_{34} & a_{44} \end{bmatrix}$$

$$a_{22}a_{33}a_{44} - a_{22}a_{34}^2 - a_{23}^2 a_{44} + 2a_{23}a_{24}a_{34} - a_{24}^2 a_{33}$$