Übungen in AlgGeo ◇ Exercices en AlgGéo ◇ T. E1 ◇ II / 5

Probl. 1 Gauss–Jordan: • *Gauss–Jordan:*

$$\left|\begin{array}{rcl} 1\,x+2\,y+0\,z+4\,w &=& 0 \\ 0\,x+1\,y+0\,z+0\,w &=& 1 \\ 1\,x+0\,y+3\,z+6\,w &=& 2 \\ 0\,x+1\,y+5\,z+1\,w &=& 3 \end{array}\right|$$

Probl. 2 (a) $M_4 = \begin{pmatrix} 1 & 2 & 0 & 4 \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 3 & 6 \\ 0 & 1 & 5 & 1 \end{pmatrix}$ $det(M_4) = ?$

(b) $M_a = \begin{pmatrix} 1 & 2 & 0 & a \\ 0 & 1 & 0 & 0 \\ 1 & 0 & 3 & 6 \\ 0 & 1 & 5 & 1 \end{pmatrix}$ $det(M_a) = ?$

Probl. 3 $\vec{a} = \begin{pmatrix} 1 \\ -2 \\ 3 \end{pmatrix}$, $\vec{b} = \begin{pmatrix} 1 \\ 1 \\ 2 \end{pmatrix}$, $\vec{c} = \begin{pmatrix} 3 \\ y \\ 4 \end{pmatrix}$, $\{\vec{a}, \vec{b}, \vec{c}\}$ *l.a.'l.d.*, $y = ?$

Probl. 4 $M_1 = \begin{pmatrix} + & 2 & 1 & 3 & 5 \\ -1 & 4 & 1 & 2 & 4 \\ +1 & 8 & 1 & 1 & 6 \\ 0 & 16 & 1 & 0 & 11 \\ -1 & 32 & 1 & -1 & 18 \end{pmatrix}$, $M_2 = \begin{pmatrix} -1 & 2 & 1 & 3 & 5 \\ +1 & 4 & 1 & 2 & 4 \\ -1 & 8 & 1 & 1 & 6 \\ 0 & 16 & 1 & 0 & 11 \\ +1 & 32 & 1 & -1 & 18 \end{pmatrix}$

$\det(M_1 + M_2) = ?$