Übungen in AlgGeo ◇ Exercices en AlgGéo ◇ T. F1 ◇ II / 5

$$\vec{a} = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}, \ \vec{b} = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}, \ \vec{c} = \begin{pmatrix} 1 \\ 4 \\ 9 \end{pmatrix}, \ \vec{d} = \begin{pmatrix} 3 \\ 6 \\ 8 \end{pmatrix}$$

Probl. 1 $M = (\vec{a}, \vec{b}, \vec{c})$

(a) $\det(M) = ?$
(b) $\{\vec{a}, \vec{b}, \vec{c}\}$ *l.u.'l.i.* ?

Probl. 2 (a) $M_1 = (\lambda\vec{a}, \vec{b}, \vec{c})$, $\det(M_1) = ?$
(b) $M_2 = (\vec{a}, \vec{b} + 7\,\vec{c}, \vec{c})$, $\det(M_2) = ?$
(c) $M_3 = (\vec{a}, \vec{b}, \vec{c} + \mu\,\vec{a})$, $\det(M_3) = ?$

Probl. 3 $M = (\vec{a}, \vec{b}, \vec{c})$, $B = (\vec{d}, \vec{b}, \vec{c})$

(a) $\det(M + B) = ?$
(b) $\det(M) + \det(B) = ?$