

Übungen in AlgGeo \diamond Exercices en AlgGéo \diamond T. E1 \diamond II / 6

Probl. 1 $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 6 & 7 \\ 10 & -1 & 8 \end{pmatrix}, B = \begin{pmatrix} 1 & -1 & 2 \\ 0 & 4 & 1 \\ 5 & 2 & 12 \end{pmatrix}$

- (a) $A \cdot B = ?$
- (b) $B \cdot A = ?$
- (c) $A \cdot A := A^2 = ?$
- (d) $A^3 = ?$
- (e) $A^2 \cdot B = ?$
- (f) $A \cdot (B \cdot A) = ?$
- (g) $A \cdot (A \cdot B) = ?$
- (h) $\det(A) = ?$
- (i) $\det(B) = ?$
- (j) $(\det(A)) \cdot (\det(B)) = ?$
- (k) $\det(A \cdot B) = ?$
- (l) $\det(A^3) = ?$
- (m) $(\det(A))^3 = ?$

Probl. 2 $\begin{pmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{pmatrix} \cdot \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 1 \end{pmatrix} = ?$

Probl. 3 $\begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 1 & 1 \end{pmatrix} \cdot \begin{pmatrix} 1 & 1 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 1 \end{pmatrix} = ?$