

Übungen in AlgGeo \diamond Exercices en AlgGéo \diamond T. F1 \diamond II / 12

Probl. 1 Sei \bullet *Soit* $A = \begin{pmatrix} 1 & -1 \\ 1 & 1 \end{pmatrix}$

(a) Eigenwerte von $A = ?$ \bullet *Valeurs propres de $A = ?$*

(b) Eigenvektoren von $A = ?$ \bullet *Vecteurs propres de $A = ?$*

Probl. 2 $A = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 0 & 5 & 6 & 7 \\ 0 & 0 & 8 & 9 \\ 0 & 0 & 0 & 10 \end{pmatrix} \rightsquigarrow \{\lambda_1, \lambda_2, \lambda_3, \lambda_4\} = \{1, 5, 8, 10\} \rightsquigarrow \vec{x}_1, \vec{x}_2, \vec{x}_3, \vec{x}_4 = ?$

Probl. 3 $A = \begin{pmatrix} 1 & 0 & 0 \\ 4 & 2 & 0 \\ 6 & 4 & 4 \end{pmatrix} \rightsquigarrow \{\lambda_1, \lambda_2, \lambda_3\} = ? \quad \vec{x}_1, \vec{x}_2, \vec{x}_3 = ?$

Probl. 4 $A = \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix} \rightsquigarrow \{\lambda_1, \lambda_2\} = ? \quad \vec{x}_1, \vec{x}_2 = ?$

Probl. 5 $E = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \rightsquigarrow \{\lambda_1, \lambda_2\} = ? \quad \vec{x}_1, \vec{x}_2 = ?$