

Übungen zu **Numerik (für Geowissenschaftler)**
Blatt 8

Ü1 (*Least squares*) Calculate a *least-squares* line (parabola) to the data

x	0	1	2	3
y	1	0	-5	-20

Ü2 (*Vectoriteration*) Use the (inverse) vector-iteration, to find approximations for the largest and the smallest absolute value eigenvalue of a matrix A .

Can You find approximations for the other eigenvalues too?

Ü3 (*Eigenvalues and Newton*) Use Newton's method to find the eigenvalues und corresponding eigenvectors of matrix A (of small dimension¹)

Use different starting points!

¹For example $A = \begin{bmatrix} 4 & 1 & 0 \\ 1 & 4 & 1 \\ 0 & 1 & 4 \end{bmatrix}$