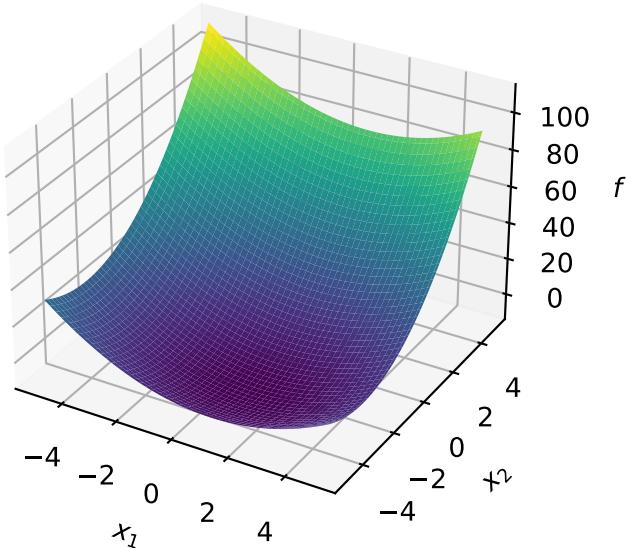
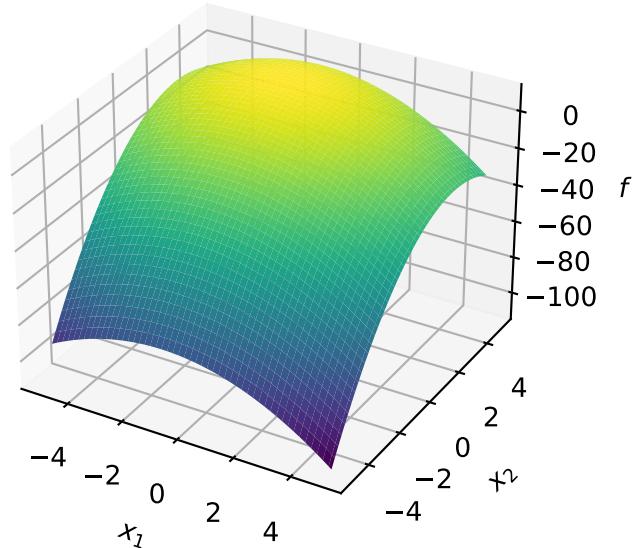


aim: solve $\mathbf{Ax} = \mathbf{b}$, here $\mathbf{x} \in \mathbb{R}^2$
Quadratic forms $f = \frac{1}{2}\mathbf{x}^T \mathbf{A} \mathbf{x} - \mathbf{b}^T \mathbf{x}$

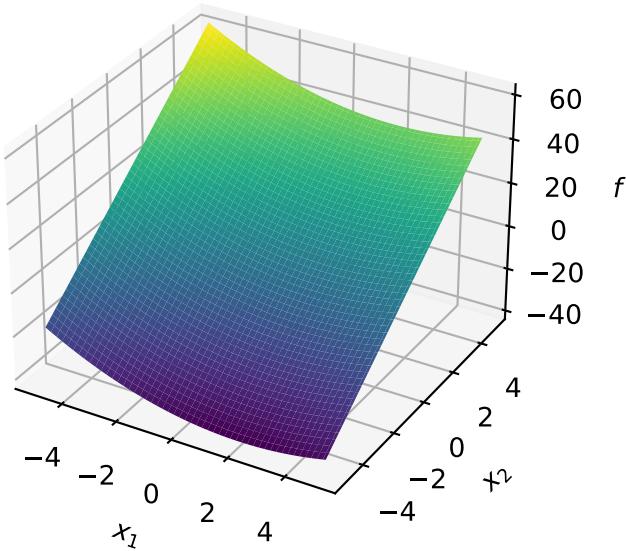
\mathbf{A} is positive definite
solution at minimum



\mathbf{A} negative definite
solution at maximum



\mathbf{A} is singular (non-invertible)
no unique solution



\mathbf{A} is non-singular and indefinite
solution at saddle point

