



QUADRATIC FORMS

Why

Definition

The *quadratic form* of a square matrix A with a vector x is the value $x^\top Ax$.

Notation

Let \mathbf{F} be a field and $A \in \mathbf{F}^{m \times m}$. For a vector $x \in \mathbf{R}^d$, A quadratic for in A Let $x \in \mathbf{R}^d$. Then $x^\top Ax$ is a quadratic form.

$$x^\top Ax = \sum_{i,j} A_{ij} x_i x_j$$

