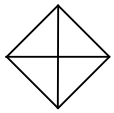

Symmetric Matrices

0.1 Why

Matrices that have reflected values across their diagonals arise often.

0.2 Definition

A square matrix is *symmetric* if its values do not depend on the order of the indices. In other words, a matrix is symmetric if the value above and below the diagonal are a mirror image.

0.3 Notation

Let $A \in \mathbf{R}^{n \times n}$ Then A is symmetric if $A_{ij} = A_{ji}$. We denote the set of real-valued n by n symmetric matrices by $\mathbf{S}^n$.