

Common Notation

Symbol	Meaning	Reference
\overrightarrow{AB}	the vector from the point A to the point B	1.2
O	the point at the origin	1.2
\mathbb{R}	the set of real numbers	1.2
\mathbb{R}^2	the set of ordered pairs of real numbers; the Cartesian plane	1.2
\in	is an element of	1.2
\vec{v} or \mathbf{v}	a vector	1.2
$\vec{0}$ or $\mathbf{0}$	the zero vector	1.2
\mathbb{R}^3	Euclidean threespace	1.3
\mathbb{R}^n	Euclidean n -space; a n -dimensional Euclidean space	1.3
V	vector space	1.4
$\mathcal{P}(x)$	space of polynomials in x	1.4
$\mathcal{F}(\mathbb{R}, \mathbb{R})$	the space of functions from \mathbb{R} to \mathbb{R}	1.4
\mathbb{Z}	the set of integers	1.4
\subseteq	is a subset of	1.6
\cup	union	2.1
WLOG	Without Loss of Generality	2.2
\exists	There exists	
\mathbf{e}_i or \vec{e}_i	Standard basis vectors for \mathbb{R}^n	2.3
$M_{m \times n}$	Set of $m \times n$ matrices	3.1
M_n	Set of (square) $n \times n$ matrices	3.1
E_{ij}	Standard basis vectors for $M_{m \times n}$	3.3.1
A^T	Transpose of A	3.3.3
$N(A)$ or $\ker(A)$	Nullspace or kernel of matrix A	3.4
I_n	Identity matrix in M_n	3.6

Symbol	Meaning	Reference
\cong	Is isomorphic to	5.1
\sim	Is similar to	5.3
$\mathbf{u} \cdot \mathbf{v}$	dot product of \mathbf{u} and \mathbf{v}	6.1
$\ \mathbf{v}\ $	magnitude of \mathbf{v}	6.1
$d(\mathbf{x}, \mathbf{y})$	distance between \mathbf{x} and \mathbf{y}	6.1
$\text{proj}_{\mathbf{v}} \mathbf{u}$	The projection of \mathbf{u} onto \mathbf{v}	6.1
$\langle \mathbf{u}, \mathbf{v} \rangle$	The inner product of \mathbf{u} and \mathbf{v}	7.1
U^\perp	Orthogonal complement to U	7.3
$\mathbf{v}_U, \mathbf{v}_{U^\perp}$	Orthogonal decomposition	7.3
λ	Eigenvalue of an operator	8.1
E_λ	Eigenspace corresponding to the eigenvalue λ	8.1
$\det A$	Determinant of A	8.2
M_{ij}	The i, j minor matrix of a matrix A	8.2.1
A_{ij}	The i, j cofactor of a matrix A	8.2.1
$\chi_A(\lambda)$	Characteristic polynomial of A	8.3