

American University of Beirut
MATH 214: Topology I

2025–2026 Fall

Dictionary of notations and terminology

Some of the notations and terminology we use in class differ from the ones used in Munkres's textbook. This file, which is to be updated as we go, compiles a dictionary of these differences.

Textbook	Other	Meaning
$A \subset B$	$A \subseteq B$	A is a subset of B (possibly $A = B$)
$A \subsetneq B$	$A \subset B$ or $A \subsetneq B$	A is a strict subset of B
$A - B$	$A \setminus B$	set difference
$\mathcal{P}(A)$	2^A	power set of A
—	$\mathbb{N}$ or $\mathbb{N}_0$	$\{0, 1, 2, \dots\}$
$\mathbb{Z}_+$	$\mathbb{Z}_+$ or $\mathbb{N}$	$\{1, 2, 3, \dots\}$
$\mathbb{Z}_-$	$\mathbb{Z}_-$	$\{-1, -2, -3, \dots\}$
order	total order or linear order	A partial order with respect to which every two elements are comparable
partial order	partial order	...
dictionary order	lexicographic order	...
$a = b$	$a = b$	a is equal to b
$a = b$	$a := b$ or $a \triangleq b$	a is defined as b or a is set to b
$\bar{A}$	$\bar{A}$ or $\text{cl}(A)$	closure of set A
$\text{Int } A$	$\mathring{A}$ or $\text{int}(A)$	interior of set A
—	$\text{lim}(E)$	set of limit points of E (non-standard)
—	$\text{isolated}(E)$	set of isolated points of E (non-standard)
standard topology on $\mathbb{R}^d$	Euclidean topology on $\mathbb{R}^d$	...
finite complement topology	co-finite topology	...
subspace topology	subspace topology or relative topology	...
a neighbourhood of x	an open neighbourhood of x	an open set $U \ni x$
—	a neighbourhood of x	a set that contains an open neighbourhood of x
limit point	limit point or accumulation point or cluster point	...