

Glossary of Symbols

$B(x, r)$	ball of radius $r > 0$ centered at x	2
∂	boundary	37
\mathbf{C}	generic notation for a category	3
\mathbf{C}^{op}	opposite category of \mathbf{C}	6
\mathbf{CG}	category of compactly generated spaces together with continuous maps	111
\mathbf{CGWH}	category of compactly generated weakly Hausdorff spaces together with continuous maps; a convenient category of spaces	111
\mathbf{CH}	category of compact Hausdorff spaces together with continuous maps	99
\mathbb{C}	complex numbers	22
CX	the (reduced) cone of a (pointed) space X	124
D^n	closed unit ball in \mathbb{R}^n	3
\emptyset	the empty set	1
$\rightarrow\rangle$	an epimorphism	14
\mathbf{k}	generic notation for a field	5
\mathbf{Fld}	category of fields	16
\mathbf{Grp}	category of groups	5
\hat{f}	shorthand for the adjunct of a map f in some adjunction	92
\simeq	homotopy	34
\mathbf{hTop}	homotopy category of spaces	5
\mathbf{hTop}_*	homotopy category of pointed spaces	121
\mathbb{Z}	integers: $\dots, -2, -1, 0, 1, 2, \dots$	22
$L \dashv R$	generic notation indicating that the functors L and R form an adjunction	92
l_p	for $1 \leq p \leq \infty$, the normed vector space of (\mathbb{R} -valued) sequences which converge in the p -norm	23
M_f	mapping cylinder of f	130
\hookrightarrow	a monomorphism	14

$\text{Nat}(F, G)$	natural transformations between functors $F, G: \mathbf{C} \rightarrow \mathbf{D}$. <i>alt:</i> $\mathbf{D}^{\mathbf{C}}(F, G)$	12
\mathbb{N}	natural numbers: $0, 1, 2, \dots$	22
P_f	mapping path space of f	130
π_n	for each $n \in \mathbb{N}$, the n th homotopy functor defined by $[S^n, -]: \mathbf{Top}_* \rightarrow \mathbf{Set}$	121
π_1	denotes the functor sending spaces to fundamental group(oid)s possibly relative to a subspace or a point	119, 120
$R\text{Mod}$	category of modules over a ring R	5
\mathbb{R}	real numbers	2
\mathbb{RP}^n	n -dimensional real projective space	29
\mathbf{Set}	category of sets	5
\mathbf{Set}_*	category of pointed sets	5
ΣX	the reduced suspension of a pointed space X	124
$\text{spec } R$	set of prime ideals of (a ring) R	22
S^n	n -sphere	3
SX	the suspension of a space X	125
\mathcal{T}_x	the open neighborhoods of x in the topology \mathcal{T}	2
\mathbf{Top}	category of topological spaces	5
\mathbf{Top}_*	category of pointed spaces	5
\mathcal{T}	generic notation for a topology	1
$\mathbf{Vect}_{\mathbf{k}}$	category of \mathbf{k} -vector spaces	5
\mathbf{WH}	category of weakly Hausdorff spaces together with continuous maps	111
X^*	dual space of an R -module X . <i>alt:</i> $\text{hom}(X, R)$	17