

# Contents

<b>I</b>	<b>Norms and metrics.</b>	
1	Norms on vector spaces . . . . .	1
2	Metrics on sets . . . . .	19
<b>II</b>	<b>Topological spaces: Fundamental concepts</b>	<b>33</b>
3	A topology on a set . . . . .	35
4	Set closures, interiors and boundaries. . . . .	56
5	Bases of topological spaces. . . . .	79
6	Continuity on topological spaces . . . . .	113
7	Product spaces . . . . .	138
8	The quotient topology . . . . .	177
<b>III</b>	<b>Topological spaces: Separation axioms</b>	<b>195</b>
9	Separation with open sets. . . . .	197
10	Separation with continuous functions . . . . .	224
<b>IV</b>	<b>Limit points in topological spaces</b>	<b>265</b>
11	Limit points in first countable spaces . . . . .	267
12	Limit points of nets . . . . .	275
13	Limit points of filters . . . . .	297
<b>V</b>	<b>Compact spaces and relatives</b>	<b>321</b>
14	Compactness: Definition and basic properties . . . . .	323
15	Countably compact spaces . . . . .	344
16	Lindelöf spaces . . . . .	357
17	Sequentially and feebly compact spaces. . . . .	367
18	Locally compact spaces . . . . .	393

19	Paracompact topological spaces . . . . .	408
<b>VI</b>	<b>The connected property</b>	<b>425</b>
20	Connected spaces and properties . . . . .	427
<b>VII</b>	<b>Topics</b>	<b>467</b>
21	Hausdorff compactifications . . . . .	469
22	Singular sets and singular compactifications . . . . .	517
23	On $C$ -embeddings and pseudocompactness . . . . .	550
24	Realcompact spaces . . . . .	569
25	Perfect functions . . . . .	591
26	Perfect and Freudenthal compactifications . . . . .	605
27	Spaces whose elements are sequences . . . . .	617
28	Completing incomplete metric spaces . . . . .	636
29	The uniform space and the uniform topology . . . . .	644
30	The Stone-Weierstrass theorem . . . . .	673
31	Metrizability . . . . .	689
32	The space of $z$ -ultrafilters. . . . .	702
33	The Stone space . . . . .	710
34	Baire spaces . . . . .	741
35	The class of $F$ -spaces . . . . .	752
	Appendix . . . . .	767
	Bibliography. . . . .	775
	Index. . . . .	778