

SOMMAIRE

Introduction to Topology

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PREFACE

1. FIRST NOTIONS OF TOPOLOGY

1. What is topology?
2. Generalization of the concepts of space and function
3. From a metric to topological space
4. The notion of Riemann surface
5. Something about knots

Further Reading

2. GENERAL TOPOLOGY

1. Topological spaces and continuous mappings
2. Topology and continuous mappings of metric spaces. Spaces $\mathbb{R}^n$, S^{n-1} and D^n
3. Factor space and quotient topology
4. Classification of surfaces
5. Orbit spaces. Projective and lens spaces
6. Operations over sets in a topological space
7. Operations over sets in metric spaces. Spheres and balls. Completeness
8. Properties of continuous mappings
9. Products of topological spaces
10. Connectedness of topological spaces
11. Countability and separation axioms
12. Normal spaces and functional separability
13. Compact spaces and their mappings
14. Compactifications of topological spaces. Metrization

Further Reading

3. HOMOTOPY THEORY

1. Mapping spaces. Homotopies, retractions, and deformations
2. Category, functor and algebraization of topological problems
3. Functors of homotopy groups
4. Computing the fundamental homotopy groups of some spaces

Further Reading

4. MANIFOLDS AND FIBRE BUNDLES

Introduction to manifolds, differentiable structures, differential calculus in dimension n , and fibre bundles.

5. HOMOLOGY THEORY

Introduction to homology theory and selected applications, including fixed-point problems.

REFERENCES

BIBLIOGRAPHY / FURTHER READING

Document de synthèse du sommaire de l'édition anglaise publiée par Mir Publishers.