Abstract

We discuss compactness in topological spaces, normed spaces, and weak compactness, covering results such as Tychonoff's Theorem, relations between norm-compactness and dimension, sequential compactness, the Banach–Alaoglu Theorem, and the Eberlein–Šmulian theorem.

Compactness in Topological Spaces

Nets and Filters

Tychonoff's Theorem

Compactness in Normed Spaces and Metric Spaces

Compactness and Dimension

Compactness and Sequential Compactness

Compactness in Continuous Function Spaces

Weak Compactness

The Banach–Alaoglu Theorem

Goldstine's Theorem

The Eberlein–Šmulian Theorem