

Intuitionistic Analysis

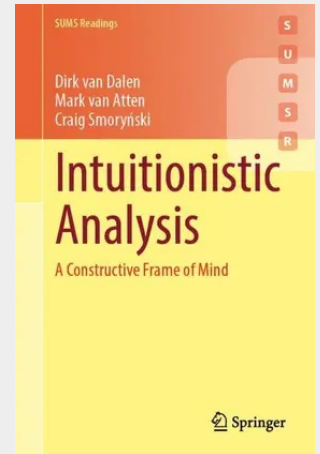
A Constructive Frame of Mind

This book introduces the core ideas of L.E.J. Brouwer's approach to constructivity in mathematics, focusing on analysis, set theory, and topology, while considering his philosophical motivations. Brouwer's "intuitionism" offers a coherent alternative to classical (nonconstructive) mathematics.

Starting with the rejection of the Principle of the Excluded Middle, the book reconstructs number systems and analysis using Cauchy sequences. It compares constructive and classical methods, highlights where classical theorems fail through "weak counterexamples", and examines Brouwer's classical and constructive versions of the Fixed-Point Theorem. Intuitionistic concepts like choice sequences and the Creating Subject lead to surprising results, such as the continuity of all total real functions and the existence of effective but non-recursive functions. Brief but fundamental comparisons are made with the later alternatives of Markov and Bishop.

Intended as an introduction for undergraduates, this book is suitable for mathematics students interested in philosophy as well as philosophers with some mathematical background.

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