THE BANACH-TARSKI PARADOX

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Abstract

An exposition of the Banach-Tarski paradox.

1. Introduction

The Banach–Tarski paradox is well-known among mathematicians, particularly among set theorists. It is a theorem in set-theoretic geometry, which states the following: Given a solid ball in 3-dimensional space, there exists a way to decompose it into finitely many pieces that can be rearranged to form two identical copies of the original ball. This provides a counterexample to the intuitive notion that volume is a well-defined property of a set.

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