

Topological Dimension

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Abstract:

Topological dimension assigns a topological space with an integer in $\{-1, 0, 1, 2, \dots, \infty\}$ which is a topological invariant. In this talk, we will explore some early ideas and attempts at defining the concept of topological dimension of a space. We will see that there are not one but several different approaches to define a topological invariant that can be identified as the topological dimension, each with its own advantages. I will sketch the proof that the n -cube has dimension n using one of these approaches. Then we shall turn our discussion to infinite dimensional spaces and see that there are different degrees of infinite dimensionality. If time permits, I wish to end my talk with some interesting examples of infinite dimensional spaces which distort our intuition gained from looking at their finite dimensional counterparts.