Michigan Math Club

Thursday at 4pm in the Commons

Free Pizza and Pop

Finite Topological Spaces

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Abstract for 2 December 2010

Almost all of the geometric objects we consider interesting have infinitely many points: there are infinitely many points in the Cartesian plane, for example, or in a circle, or a sphere. It is tempting to assume that there is nothing geometrically interesting going on in a set with only finitely many points, but this is not always true. One can build a finite topological space that "looks like" any of our familiar spaces, and which captures a large amount of the relevant information about that more complicated object. Beginning with a whirlwind tour of some basic notions from topology, I will describe how to construct these finite models and, time permitting, explain some of the topological information they encapsulate.