

A proof of the Graham–Sloane conjecture

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In graph theory, a harmonious labeling of a graph with m edges is a labeling of its vertices with a subset of the integers ranging from 0 to m inclusive, such that no two vertices share a label, and each edge is uniquely identified by the congruence class of the sum modulo m of its endpoints. The Graham–Sloane conjecture asserts that every tree admits a harmonious labeling. We provide a proof of the Graham–Sloane conjecture via a functional reformulation of the conjecture.

Keywords: Graph labeling, Harmonious