

# RAMSEY NUMBERS

Jeannie Genoese-Zerbi

“Complete disorder is impossible.” This quote from T S Motzkin captures the premise of Ramsey theory. Even when nothing specific is known about a system, size alone can guarantee that it will have certain characteristics. Ramsey numbers are a component of this search for order. In graph theoretic terms, given the number of colors with which to color the edges of a graph, and the monochromatic subgraphs that are being sought, the Ramsey number specifies the number of vertices a complete graph must have in order to guarantee the existence of at least one of those subgraphs within it. This presentation introduces the fundamental characteristics of Ramsey numbers within the context of graph theoretic Ramsey theory and discusses the little progress that has been made toward determining specific Ramsey numbers, as well as their upper and lower bounds. Open research questions are also presented.