

Computation of New Diagonal Graph Ramsey Numbers

Richard M. Low*, San Jose State University

Let G and H be connected simple graphs. The *graph Ramsey number* $R(G, H)$ is defined to be the minimum n , where every 2-coloring of the edges of K_n contains a monochromatic red G or a monochromatic blue H . We calculate new diagonal graph Ramsey numbers $R(G, G)$ and extend the table found in ‘*An Atlas of Graphs.*’ This is accomplished by first converting the calculation of $R(G, G)$ into a satisfiability problem in propositional logic. Mathematical arguments and scientific computing are then used to calculate $R(G, G)$.

Key words: graph Ramsey theory, diagonal Ramsey numbers.