

RAMSEY NUMBER OF WHEELS VERSUS CYCLES AND TREES

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Abstract.

Let G_1, G_2, \dots, G_t be arbitrary graphs. The Ramsey number $R(G_1, G_2, \dots, G_t)$ is the smallest positive integer n such that if the edges of the complete graph K_n are partitioned into t disjoint color classes giving t graphs H_1, H_2, \dots, H_t , then at least one H_i has a subgraph isomorphic to G_i . In this paper, we provide the exact value of the $R(T_n, W_m)$ for odd m , $n \geq m - 1$, where T_n is either a caterpillar, a tree with diameter at most four or a tree with a vertex adjacent to at least $\lceil \frac{n}{2} \rceil - 2$ leaves. Also, we determine $R(C_n, W_m)$ for even integers n and m , $n \geq m + 500$, which improves a result of Shi and confirms a conjecture of Surahmat et al. In addition, the multicolor Ramsey number of trees versus an odd wheel is discussed in this paper.