

The Ramsey Numbers for Disjoint Unions of Graphs

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Abstract. For given graphs G and H , the Ramsey number $R(G, H)$ is the smallest natural number n such that for every graph F of order n : either F contains G or the complement of F contains H . This paper investigates the Ramsey number $R(kG, H)$ for any natural number k . We show that if $2n - 4$, $2n - 8$ or $2n - 6$, then $R(kS_n, W_m) = R(S_n, W_m) + (k-1)n$. Furthermore, if $|G_i| \geq (|G_i| - |G_{i+1}|)(\chi(H) - 1)$ and $R(G_i, H) = (\chi(H) - 1)(|G_i| - 1) + 1$, for each i , then $R(\bigcup_{i=1}^k G_i, H) = R(G_k, H) + \sum_{i=1}^{k-1} |G_i|$.

Keywords : Ramsey numbers, multiple copies of graphs, wheels

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