Annals of
Pure and Applied
Mathematics

A Size Multipartite Ramsey Problem Involving the Claw Graph

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Abstract. Let $K_{j \times s}$ denote a complete balanced multipartite graph consisting of j partite sets of uniform size s. For any two colouring of the edges of a graph $K_{j \times s}$, we say that $K_{j \times s} \rightarrow (K_{1,3}, G)$, if there exists a copy of $K_{1,3}$(Claw graph) in the first colour or a copy of G in the second colour. $m_j(K_{1,3}, G)$ is defined as the smallest positive integer s such that $K_{j \times s} \rightarrow (K_{1,3}, G)$. In this paper we find all such $m_j(K_{1,3}, G)$ for all graphs G on 4 vertices.

Keywords: Ramsey theory, Multipartite Ramsey numbers

AMS Mathematics Subject Classification (2010): 05C55, 05D10