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# 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 $K_{j \times s} \rightarrow\left(K_{1,3}, G\right)$, if there exists a copy of $K_{1,3}$ (Claw graph) in the first colour or a copy of $G$ in the second colour. $m_{j}\left(K_{1,3}, G\right)$ is defined as the smallest positive integer $s$ such that $K_{j \times s} \rightarrow\left(K_{1,3}, G\right)$. In this paper we find all such $m_{j}\left(K_{1,3}, G\right)$ for all graphs $G$ on 4 vertices.

Keywords: Ramsey theory, Multipartite Ramsey numbers
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