ON THE b-DOMATIC NUMBER OF GRAPHS

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Abstract

A set of vertices $S$ in a graph $G = (V, E)$ is a dominating set if every vertex not in $S$ is adjacent to at least one vertex in $S$. A domatic partition of graph $G$ is a partition of its vertex-set $V$ into dominating sets. A domatic partition $\mathcal{P}$ of $G$ is called $b$-domatic if no larger domatic partition of $G$ can be obtained from $\mathcal{P}$ by transferring some vertices of some classes of $\mathcal{P}$ to form a new class. The minimum cardinality of a $b$-domatic partition of $G$ is called the $b$-domatic number and is denoted by $bd(G)$. In this paper, we explain some properties of $b$-domatic partitions, and we determine the $b$-domatic number of some families of graphs.

Keywords: domatic partition, domatic number, $b$-domatic partition, $b$-domatic number.

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References


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