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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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