

UPPER BOUNDS ON THE SIGNED TOTAL (k, k) -DOMATIC NUMBER OF GRAPHS

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Abstract

Let G be a graph with vertex set $V(G)$, and let $f : V(G) \rightarrow \{-1, 1\}$ be a two-valued function. If $k \geq 1$ is an integer and $\sum_{x \in N(v)} f(x) \geq k$ for each $v \in V(G)$, where $N(v)$ is the neighborhood of v , then f is a signed total k -dominating function on G . A set $\{f_1, f_2, \dots, f_d\}$ of distinct signed total k -dominating functions on G with the property that $\sum_{i=1}^d f_i(x) \leq k$ for each $x \in V(G)$, is called a signed total (k, k) -dominating family (of functions) on G . The maximum number of functions in a signed total (k, k) -dominating family on G is the signed total (k, k) -domatic number of G .

In this article we mainly present upper bounds on the signed total (k, k) -domatic number, in particular for regular graphs.

Keywords: signed total (k, k) -domatic number, signed total k -dominating function, signed total k -domination number, regular graphs.

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