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TOTAL DOMINATION MULTISUBDIVISION NUMBER OF A GRAPH

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Abstract

The domination multisubdivision number of a nonempty graph G was defined in [3] as the minimum positive integer k such that there exists an edge which must be subdivided k times to increase the domination number of G. Similarly we define the *total domination multisubdivision number* $\mathrm{msd}_{\gamma_t}(G)$ of a graph G and we show that for any connected graph G of order at least two, $\mathrm{msd}_{\gamma_t}(G) \leq 3$. We show that for trees the total domination multisubdivision number is equal to the known total domination subdivision number. We also determine the total domination multisubdivision number for some classes of graphs and characterize trees T with $\mathrm{msd}_{\gamma_t}(T) = 1$.

Keywords: (total) domination, (total) domination subdivision number, (total) domination multisubdivision number, trees.

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