

Location-Domination on Join of Two Graphs and Their Complements

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Abstract : Dominating sets and related topics have been studied extensively in the past few decades. A dominating set of a graph G is a subset D of V such that every vertex not in D is adjacent to at least one member of D . The domination number $\gamma(G)$ is the number of vertices in a smallest dominating set for G . Some problems involving detection devices can be modeled with graphs. Finding the minimum number of devices needed according to the type of devices and the necessity of locating the object gives rise to locating-dominating sets. A subset S of vertices of a graph G is called locating-dominating set, LD-set for short, if it is a dominating set and if every vertex v not in S is uniquely determined by the set of neighbors of v belonging to S . The location-domination number $\lambda(G)$ is the minimum cardinality of an LD-set for G . The complement of a graph G is a graph \bar{G} on same vertices such that two distinct vertices of \bar{G} are adjacent if and only if they are not adjacent in G . An LD-set of a graph G is global if it is an LD-set of both G and its complement \bar{G} . The global location-domination number $\lambda_g(G)$ is defined as the minimum cardinality of a global LD-set of G . In this paper, global LD-sets on the join of two graphs are characterized. Global location-domination numbers of these graphs are also determined.

Keywords : dominating set, global locating-dominating set, global location-domination number, locating-dominating set, location-domination number

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