

Connected geodomination in graphs

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Abstract

A pair x, y of vertices in a nontrivial connected graph G is said to geodominates a vertex v of G if either $v \in \{x, y\}$ or v lies in an $x - y$ geodesic of G . A set S of vertices of G is a geodominating set if every vertex of G is geodominated by some pair of vertices of S . A vertex of G is link-complete if the subgraph induced by its neighborhood is complete. A pair x, y of vertices in G is said to openly geodominates a vertex v of G if $v \neq x, y$ and v is geodominated by x and y . A set S is an open geodominating set of G if for each vertex v , either (1) v is link-complete and $v \in S$ or (2) v is openly geodominated by some pair of vertices of S . A connected geodominating set is a geodominating set which is connected. The cardinality of a minimum connected geodominating set in G is its connected geodomination number $g_c(G)$. For a minimum connected geodominating set S of G , a subset $T \subseteq S$ is said to be a forcing set if S is the unique connected geodominating set containing T . The forcing connected geodomination number $f(G, g_c(G))$ is the minimum size of a forcing connected geodominating set among the forcing connected geodominating sets of G . We study (open) connected geodomination number and forcing connected geodomination number in a graph G .

Keywords : Geodomination, forcing geodomination.

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