

Domination in graphs and forbidden cycles

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Abstract

A set S of vertices in a graph G is a dominating set of G if every vertex not in S has a neighbor in S , where two vertices are neighbors in G if they are adjacent. A dominating set S with the additional property that every vertex in S has a neighbor in S is a total dominating set of G . The domination number, $\gamma(G)$, of G is the cardinality of a minimum dominating set in G , while the total domination number, $\gamma_t(G)$, of G is the cardinality of a minimum total dominating set in G . We present bounds on the domination and total domination numbers of a graph with given minimum degree. We discuss results showing that if certain cycles are forbidden, then these known upper bounds on core domination parameters can be improved.