[1, 2]-Sets in Graphs

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Abstract

A subset $S \subseteq V$ in a graph $G = (V, E)$ is a [1, 2]-set if for every vertex $v \in V \setminus S$, $1 \leq |N(v) \cap S| \leq 2$, that is, every vertex $v \in V \setminus S$ is adjacent to at least one but not more than two vertices in $S$. In this paper we relate the concept of [1, 2]-sets to a host of other concepts in domination theory, including perfect domination, efficient domination, nearly perfect sets, 2-packings and $k$-dependent sets.