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On the Roman domination in the lexicographic product graphs

Content :

A Roman domination function of a graph is a function $f: V \rightarrow \{0,1,2\}$ such that every vertex with $f(v)=0$ is adjacent to some vertex with $f(v)=2$. The Roman domination number is then the minimum of $w(f)=\sum_{v \in V} f(v)$ over all such functions. We give the Roman domination number of the lexicographic product of graphs using a new concept of the so-called dominating pairs and introduce some new classes of Roman graphs.

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