

Eulerian k -dominating graphs

Margaret-Ellen Messinger*, Amanda Porter, Mount Allison University

The k -dominating graph of a graph G is denoted $\mathcal{D}_k(G)$. The vertices of $\mathcal{D}_k(G)$ correspond to the dominating sets of G that have cardinality at most k . Two vertices of $\mathcal{D}_k(G)$ are adjacent if and only if the corresponding dominating sets in G differ by the deletion or addition of a single vertex (following the TAR model). We are interested in properties of domination reconfiguration graphs and ask: for which graphs G , is $\mathcal{D}_k(G)$ Eulerian? We answer this question for $k = |V(G)|$ and provide some results for $k < |V(G)|$.

Keywords: reconfiguration, domination