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*Computational Approach of Total Domination of using Adjacency Matrices in
MATLAB.* Preliminary report.

Let $G = (V, E)$ be a finite undirected graph. A set S of vertices in V is said to be total k -dominating if every vertex in V is adjacent to at least k vertices in S . The total k -domination number, $\gamma_{kt}(G)$, is the minimum cardinality of a total k -dominating set in G . In this work, we use MATLAB to algorithmically solve for total domination numbers as a means of solving interesting problems posed in recent years. We then expand on these algorithms to find the total domination number to any graph of any k . (Received September 21, 2021)