THE AVERAGE DOMINATION NUMBER FOR MIDDLE GRAPHS OF SOME OF THE WELL-KNOWN GRAPHS

DERYA DOGAN, TUFAN TURACI

Abstract. The stability of communication network, composed of processing nodes and communication links, is the prime importance of network designers. Graph theoretical parameters can be used to describe the stability and reliability of communication networks. If we consider a graph as modeling a network, the average domination number of a graph is one of the parameters for graph vulnerability.

Let $G = (V, E)$ be a graph. For a vertex v of G, the domination number of G relative to v, denoted by $\gamma_v(G)$ as the minimum cardinality of a dominating set in G that contains v. The average domination number of G, denoted by $\gamma_{av}(G)$, can be written as:

$$\frac{1}{|V(G)|}\sum_{v\epsilon V(G)}\gamma_v(G)$$

In this paper, we considered the average domination number of middle graphs of some of the well-known graphs. We examined some bounds of domination number and explained why we are using this parameter instead of domination number.

Department of Mathematics, Ege University 35100, Bornova-Izmir TURKEY
E-mail address: derya.dogan@ege.edu.tr, tufanturaci@gmail.com