INFLUENCE OF THE EDGE SUBDIVISION ON THE CONVEX DOMINATION NUMBER

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Let $G = (V, E)$ be a connected undirected graph. The *distance* $d_G(u, v)$ between two vertices u and v in a connected graph G is the length of the shortest uv-path in G. A uv-path of length $d_G(u, v)$ is called *uv-geodesic*. A set $X \subseteq$ is *convex* in G if vertices from all ab-geodesics belong to X for every two vertices $a, b \in X$. A set X is a *convex dominating set* if it is convex and dominating. The *convex domination number* $\gamma_{con}(G)$ of a graph G is the minimum cardinality of a convex dominating set. The *s*ubdivision of some edge $e = uv$ in a graph G yields to a graph G_{uv} with a vertex set $V(G) \cup \{w\}$ and an edge set $E(G) - \{uv\} \cup \{uw, wv\}$.

We study the influence of the edge subdivision on the convex domination number. We show that in general an edge subdivision can arbitrarily increase and arbitrarily decrease the convex domination number. We also find some bounds for unicyclic graphs and we investigate graphs G for which the convex domination number changes after subdivision of any edge in G.

Keywords: convex domination number, edge subdivision.

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