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# CONVEX AND WEAKLY CONVEX DOMINATION IN PRISM GRAPHS

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**Abstract**

For a given graph $G = (V, E)$ and permutation $\pi : V \mapsto V$ the prism $\pi G$ of $G$ is defined as follows: $V(\pi G) = V(G) \cup V(G')$, where $G'$ is a copy of $G$, and $E(\pi G) = E(G) \cup E(G') \cup M_\pi$, where $M_\pi = \{uv' : u \in V(G), v = \pi(u)\}$ and $v'$ denotes the copy of $v$ in $G'$.

We study and compare the properties of convex and weakly convex dominating sets in prism graphs. In particular, we characterize prism $\gamma_{con}$-fixers and -doublers. We also show that the differences $\gamma_{wcon}(G) - \gamma_{wcon}(\pi G)$ and $\gamma_{wcon}(\pi G) - 2\gamma_{wcon}(G)$ can be arbitrarily large, and that the convex domination number of $\pi G$ cannot be bounded in terms of $\gamma_{con}(G)$.

**Keywords:** domination, prism graphs.

**2010 Mathematics Subject Classification:** 05C69.

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