

## 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 -doubblers. 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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doi:10.1007/s10587-014-0136-3

Received 24 November 2017

Revised 3 September 2018

Accepted 3 September 2018