BLOCK GRAPHS WITH LARGE PAIRED DOMINATION MULTISUBDIVISION NUMBER

CHRISTINA M. MYNHARDT

Department of Mathematics and Statistics
University of Victoria
Victoria BC, Canada

e-mail: kieka@uvic.ca

AND

JOANNA RACZEK

Faculty of Applied Physics and Mathematics
Gdańsk University of Technology
ul. Narutowicza 11/12, 80-233 Gdańsk, Poland

e-mail: joanna.raczek@pg.edu.pl

Abstract

The paired domination multisubdivision number of a nonempty graph G , denoted by $\text{msd}_{\text{pr}}(G)$, is the smallest positive integer k such that there exists an edge which must be subdivided k times to increase the paired domination number of G . It is known that $\text{msd}_{\text{pr}}(G) \leq 4$ for all graphs G . We characterize block graphs with $\text{msd}_{\text{pr}}(G) = 4$.

Keywords: paired domination, domination subdivision number, domination multisubdivision number, block graph.

2010 Mathematics Subject Classification: 05C69.

REFERENCES

- [1] M. Atapour, A. Khodkar and S.M. Sheikholeslami, *Characterization of double domination subdivision number of trees*, Discrete Appl. Math. **155** (2007) 1700–1707. doi:10.1016/j.dam.2007.03.007
- [2] M. Dettlaff and J. Raczek, *Paired domination multisubdivision numbers of graphs*, submitted.

- [3] M. Dettlaff, J. Raczek and J. Topp, *Domination subdivision and domination multi-subdivision numbers of graphs*, Discuss. Math. Graph. Theory **39** (2019) 829–839. doi:10.7151/dmgt.2103
- [4] O. Favaron, H. Karami and S.M. Sheikholeslami, *Connected domination subdivision numbers of graphs*, Util. Math. **77** (2008) 101–111.
- [5] O. Favaron, H. Karami and S.M. Sheikholeslami, *Paired-domination subdivision numbers of graphs*, Graphs Combin. **25** (2009) 503–512. doi:10.1007/s00373-005-0871-1
- [6] T.W. Haynes, S.M. Hedetniemi, S.T. Hedetniemi, J. Knisely and L.C. van der Merwe, *Domination subdivision numbers*, Discuss. Math. Graph Theory **21** (2001) 239–253. doi:10.7151/dmgt.1147
- [7] T.W. Haynes, M.A. Henning and L.S. Hopkins, *Total domination subdivision numbers of graphs*, Discuss. Math. Graph Theory **24** (2004) 457–467. doi:10.7151/dmgt.1244
- [8] T.W. Haynes, S.T. Hedetniemi and P.J. Slater, *Fundamentals of Domination in Graphs* (Marcel Dekker Inc., New York, 1998).
- [9] T.W. Haynes, S.T. Hedetniemi and L.C. van der Merwe, *Total domination subdivision numbers*, J. Combin. Math. Combin. Comput. **44** (2003) 115–128.
- [10] A. Khodkar, B.P. Mobaraky and S.M. Sheikholeslami, *Upper bounds for the Roman domination subdivision number of a graph*, AKCE Int. J. Graphs Comb. **5** (2008) 7–14.
- [11] S. Velammal, *Studies in Graph Theory: Covering, Independence, Domination and Related Topics*, Ph.D. Thesis (Manonmaniam Sundaranar University, Tirunelveli, 1997).

Received 27 June 2018
 Revised 28 December 2018
 Accepted 16 May 2019