Alvarado, J. D.; Dantas, S.; Mohr, E.; Rautenbach, D.
On the maximum number of minimum dominating sets in forests. (English) Zbl 1405.05129

Summary: G. H. Fricke et al. [Discuss. Math., Graph Theory 31, No. 3, 517–531 (2011; Zbl 1229.05219)]
asked whether every tree with domination number $\gamma$ has at most $2^\gamma$ minimum dominating sets. A. Bień
[“Properties of gamma graphs of trees”, presentation at Colourings, independence and domination, 17th
workshop on graph theory, CID’17. Piechowice, Poland, September 17–22, 2017] gave a counterexample,
which allows us to construct forests with domination number $\gamma$ and $2.0598\gamma$ minimum dominating sets.
We show that every forest with domination number $\gamma$ has at most $2.4606\gamma$ minimum dominating sets,
and that every tree with independence number $\alpha$ has at most $2^{\alpha-1} + 1$ maximum independent sets.

MSC:
05C69 Vertex subsets with special properties (dominating sets, independent sets, cliques, etc.)
05C05 Trees
05C35 Extremal problems in graph theory

Keywords:
tree; domination number; minimum dominating set; independence number; maximum independent set

Full Text: DOI arXiv

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and Domination (CID 2017), Piechowice, Poland.
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