A Vizing-type result for eternal domination

Keith Driscoll*, Clayton State University; William F. Klostermeyer, University of North Florida; Elliot Krop, Clayton State University; Colton Magnant, Clayton State University and Center for Mathematics and Interdisciplinary Sciences Qinghai Province; and Patrick Taylor, Shelton State Community College

We show sharp inequalities of Vizing-type for eternal domination. Namely, we prove that for any graphs G and H, $\gamma^\infty(G \boxtimes H) \geq \alpha(G)\gamma^\infty(H)$, where γ^∞ is the eternal domination function, α is the independence number, and $\boxtimes$ is the strong product of graphs. This addresses a question of Klostermeyer and Mynhardt. We also show some families of graphs attaining the strict inequality $\gamma^\infty(G\Box H) > \gamma^\infty(G)\gamma^\infty(H)$ where $\Box$ is the Cartesian product. For the eviction model of eternal domination, we show a sharp upper bound for $e^\infty(G \boxtimes H)$.

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