Some results related to the Kulli-Sigarkanti conjecture

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We give two proof of the following statement: for any graph G, if $\gamma^{-1}(G)$ is the inverse domination number of G and $\alpha(G)$ is the independence number of G, then $\gamma^{-1}(G) \leq 2\alpha(G) - 2$. In particular, we show that under the same conditions, $\gamma^{-1}(G) \leq \alpha(G) + \gamma(G) - 1$. Furthermore, we prove that the inequality $\gamma^{-1}(G) \leq \alpha(G)$ is true for all G, if it is true for the family of graphs which are inverse domination vertex critical, inverse domination critical with respect to edge contraction, but not inverse domination edge critical, .

Keywords: domination, inverse domination, independence number, Kulli-Sigarkanti conjecture