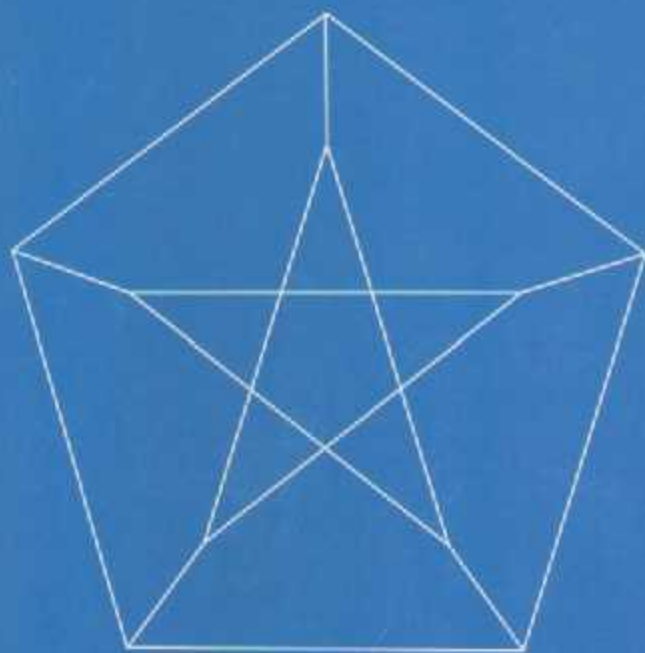




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Upper and lower independence and domination numbers in graphs

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Abstract

The upper and lower independence numbers of a graph G are defined as $\alpha_+(G)$ and $\alpha_-(G)$ respectively. The upper and lower domination numbers of G are defined as $\gamma_+(G)$ and $\gamma_-(G)$ respectively. We study the relationships between $\alpha_+(G)$, $\alpha_-(G)$, $\gamma_+(G)$ and $\gamma_-(G)$ for a graph G . We also study the relationships between $\alpha_+(G)$ and $\gamma_+(G)$ for a graph G . We also study the relationships between $\alpha_-(G)$ and $\gamma_-(G)$ for a graph G .

Key words

Upper and lower independence numbers, upper and lower domination numbers

1. Introduction

Let G be a graph with vertex set $V(G)$ and edge set $E(G)$. A dominating set of G is a subset S of $V(G)$ such that every vertex $v \in V(G) - S$ is adjacent to at least one vertex of S . The domination number $\gamma(G)$ is the minimum cardinality of a dominating set. The independent domination number $\gamma_i(G)$ is the minimum cardinality of a set that is both independent and dominating. The independence number $\alpha(G)$ is the maximum cardinality of an independent set in G .



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