

Title : An edge-independent set of complete tripartite graphs $K_{n,n,n}$

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ABSTRACT

This independent study we explore the chromatic number, chromatic index and total chromatic number of simple graph through the analysis of independent sets. The research primarily focuses on determining the chromatic index of complete tripartite graphs $K_{m,n,k}$. The findings demonstrate that for the complete tripartite graph $K_{n,n,n}$, the chromatic index is $2n$ when n is an even integer. Conversely, when n is an odd integer, the chromatic index is $2n + 1$. Furthermore, the study investigates the properties of chromatic numbers in isomorphic graphs and almost complete tripartite graphs to establish a theoretical foundation for proofs. These results contribute to extending the research toward establishing conjectures for the chromatic index of complete tripartite graphs $K_{m,n,k}$ in the general case.

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