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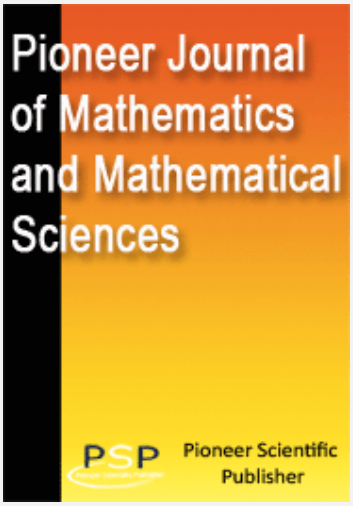

ON STRICT-DOUBLE-BOUND NUMBERS OF GRAPHS AND SUM OPERATIONS

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Abstract

For a poset $P = (X, \leq_P)$, the strict-double-bound graph of P is the graph $\mathrm{sDB}(P)$ on $V(\mathrm{sDB}(P)) = X$ for which vertices u and v of $\mathrm{sDB}(P)$ are adjacent if and only if $u \neq v$ and there exist elements x, $y \in X$ distinct from u and v such that $x \leq_P u \leq_P y$ and $x \leq_P v \leq_P y$. The strict-double-bound number $\zeta(G)$ of a graph G is defined as $\min\{n; \mathrm{sDB}(P) \cong G \cup \overline{K}_n$ for some poset $P\}$. We consider strict-double-bound numbers in terms of sum operations. We obtain that for a connected graph G with at least two vertices and a poset P such that $\mathrm{sDB}(P) \cong G \cup \overline{K}_{\zeta(G)}$,

$$\zeta(G + mK_n) \leq \zeta(G) + (m-1) \times \min\{|\mathrm{Min}(P)|, |\mathrm{Max}(P)|\}.$$

We also obtain that $\zeta(G) \leq |S| + 2$ for a split graph G with $V(G) = V(K_n) \cup S$.

Keywords and phrases: strict-double-bound graph, strict-double-bound number, sum operation.