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# A note on sparing number algorithm of graphs






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## Abstract

Let  $X$  denote a set of all non-negative integers and  $\mathcal{P}(X)$  be its power set. A weak integer additive set-labeling (WIASL) of a graph  $G$  is an injective set-valued function  $f: V(G) \rightarrow \mathcal{P}(X) - \{\emptyset\}$  where induced function  $f^*: E(G) \rightarrow \mathcal{P}(X) - \{\emptyset\}$  is defined by  $f^*(uv) = f(u) + f(v)$  such that either  $|f^*(uv)| = |f(u)|$  or  $|f^*(uv)| = |f(v)|$ , where  $f(u) + f(v)$  is the sumset of  $f(u)$  and  $f(v)$ . The sparing number of a WIASL-graph  $G$  is the minimum required number of edges in  $G$  having singleton set-labels. In this paper, we discuss an algorithm for finding the sparing number of arbitrary graphs.

**Q Subject Classification:** 05C78 05C90

**Q Keywords:** induced set-valued graphs, vertex set, additive set-labeled graphs, sparing number of a graph, sparing number algorithm