

# Simplicial Vertices of Superpower Graph of $A_n$ , $D_{2n}$ and $EPPO$ Group

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## Abstract

Let  $G$  be a finite group. The superpower graph  $\mathcal{S}(G)$  of  $G$  is defined as an undirected simple graph whose vertex set is  $G$ , and any two distinct vertices  $v_1$  and  $v_2$  are adjacent if and only if either  $o(v_1)$  divides  $o(v_2)$  or  $o(v_2)$  divides  $o(v_1)$  in  $G$ . A vertex in a graph is said to be a simplicial vertex or an extreme vertex if its set of neighbours induces a clique. In this article, we characterize the simplicial vertices of the superpower graph of the  $EPPO$  group and the dihedral group  $D_{2n}$ . In addition, as an extension of the result proved by Romdhini et al. [3], we characterize the simplicial vertices in the superpower graph generated by the alternating group  $A_n$ .

## References

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