

Title: The influence of weakly $\mathfrak{3}$ -permutable subgroups on the structure of finite groups

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Let $\mathfrak{3}$ be a complete set of Sylow subgroups of a finite group G , that is, for each prime p dividing the order of G , $\mathfrak{3}$ contains exactly one and only one Sylow p -subgroup of G . A subgroup H of G is said to be $\mathfrak{3}$ -permutable of G if H permutes with every member of $\mathfrak{3}$. A subgroup H of G is said to be a weakly $\mathfrak{3}$ -permutable subgroup of G if there exists a subnormal subgroup K of G such that $G = HK$ and $H \cap K \leq H_3$, where H_3 is the subgroup of H generated by all those subgroups of H which are $\mathfrak{3}$ -permutable subgroups of G . We investigate the structure of the finite group G under the assumption that every cyclic subgroup of prime order p or of order 4 (if $p = 2$) is a weakly $\mathfrak{3}$ -permutable subgroup of G . Our results extend and generalize several results in the literature.

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