ON SOME ARITHMETIC PROPERTIES OF FINITE GROUPS

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We fix some partition \( \sigma = \{ \sigma_i | i \in I \} \) of the set of all primes \( \mathbb{P} \) (that is, \( \mathbb{P} = \bigcup_{i \in I} \sigma_i \) and \( \sigma_i \cap \sigma_j = \emptyset \) for all \( i \neq j \)). A group \( G \) is called \( \sigma \)-primary if \( G \) is a \( \sigma_i \)-group for some \( i = i(G) \).

We say that a finite group \( G \) is: \( \sigma \)-soluble if every chief factor of \( G \) is \( \sigma \)-primary; \( \sigma \)-nilpotent if \( (H/K) \times (G/C_G(H/K)) \) is \( \sigma \)-primary for every chief factor \( H/K \) of \( G \).

Based on these concepts, we develop and unify [1–5] some aspects of the theories of soluble and quasinilpotent groups, of the subgroup lattices theory and of the theory of subnormal subgroups.

References