ON THE PRODUCT OF TWO $\pi$-DECOMPOSABLE
SOLUBLE GROUPS

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Abstract

Let the group $G = AB$ be a product of two $\pi$-decomposable subgroups $A = O_\pi(A) \times O_{\pi'}(A)$ and $B = O_\pi(B) \times O_{\pi'}(B)$ where $\pi$ is a set of primes. The authors conjecture that $O_\pi(A)O_\pi(B) = O_\pi(B)O_\pi(A)$ if $\pi$ is a set of odd primes. In this paper it is proved that the conjecture is true if $A$ and $B$ are soluble. A similar result with certain additional restrictions holds in the case $2 \in \pi$. Moreover, it is shown that the conjecture holds if $O_{\pi'}(A)$ and $O_{\pi'}(B)$ have coprime orders.

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