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Abstracts of Short Communications and Posters

Section:

2. Algebra

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Chowdhury, Munibur Rahman, University of Dhaka, Bangladesh
A commutativity theorem for groups
Theorem. Suppose K is a cyclic normal subgroup of G such that the factor group G/K is cyclic and its order m is coprime to phi of k, the order of K. Then G is abelian.
In this situation G has order mk and is generated by two elements a, b with a to the power n in K and o(b) = k.
Remark. The stated condition though sufficient, is not necessary for G to be abelian.
Using the fact [1] that every group whose order is a product of distinct primes has a normal Sylow subgroup, we obtain a new inductive proof of the Theorem. Every group of order n is cyclic if n coprime to phi to n.
1. F. G. Frobenius, "Uber auflosbare Gruppen, Sitzber. Akad. Berlin 337-345 (1893) = Gesammelte Werke II, No. 43, 565-573.