

Abstract

The 2-Generator Groups Whose
Commutator of the Generators is Central

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We show that all groups of the form

$$G_{m,n} = \langle x, y \mid x^m = y^n = e, [x, y]^x = [x, y] = [x, y]^y \rangle$$

have nilpotency class at most 2, order $mn \times \text{lcm}(m, n)$ and exponent either $\text{lcm}(m, n)$ or $2\text{lcm}(m, n)$ in the finite case, and consider the infinite case. We also show that in the group $G_{m,n}$ every cyclic subgroup is conjugate permutable, but not necessarily quasinormal.

Keywords: Groups of the form $G_{m,n}$.