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On Jordan Generalized Higher Derivations in Rings

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Abstract: I. N. Herstein proved that any Jordan derivation on a prime ring of characteristic not 2 is a derivation. M. Breşar extended this result to semiprime rings, while M. Ferrero and C. Haetinger extended the result to Jordan higher derivations. Recently, M. Ashraf and N. Rehman considered the question of Herstein for a Jordan generalized derivation. This paper extends Ashraf's Theorem. We prove that if R is a 2-torsion-free ring which has a commutator right nonzero divisor, then every Jordan generalized higher derivation on R is a generalized higher derivation.

Key Words: Higher Derivations, Generalized Higher Derivations, Commutator