A Criterion for Solvability of a Finite Group by the Sum of Element Orders

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PII: S0021-8693(18)30525-8
DOI: https://doi.org/10.1016/j.jalgebra.2018.09.009
Reference: YJABR 16859

To appear in: *Journal of Algebra*

Received date: 1 August 2018

Please cite this article in press as: M. Baniasad Azad, B. Khosravi, A Criterion for Solvability of a Finite Group by the Sum of Element Orders, *J. Algebra* (2018), https://doi.org/10.1016/j.jalgebra.2018.09.009

Highlights

- Let G be a finite group and $\psi(G) = \sum_{g \in G} o(g)$, where $o(g)$ denotes the order of $g \in G$.
- In [M. Herzog, P. Longobardi, M. Maj, Two new criteria for solvability of finite groups, J. Algebra, 511 (2018) 215–226], the authors give two new criteria for solvability of finite groups. They proved that, if G is a group of order n and $\psi(G) \geq \psi(C_n)/6.68$, then G is solvable, where C_n is the cyclic group of order n.
- For improving this result, they put forward the following conjecture: **Conjecture.** *If G is a group of order n and $\psi(G) > \frac{211}{1617}\psi(C_n)$, then G is solvable.*
- As the main result of this paper we prove the validity of this conjecture.