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

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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.

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