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JMAA-12-28: Request to Review

1 üzenet

JMAA (ELS) <jmaa@elsevier.com>

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Subject: JMAA-12-28: Request to Review

Title: Sharp inequalities and asymptotic expansions for the constants of Landau and Lebesgue

Corresponding Author: Professor Chen Chao-ping

Authors:

Dear Dr. Nemes,

I would like to ask your assistance in determining whether this manuscript is appropriate for publication in the Journal of Mathematical Analysis and Applications (JMAA). In particular I seek your assessment as to whether the results and methods in the paper are significant enough to warrant publication in this journal.

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Abstract:

The constants of Landau and Lebesgue are defined for all integers n

≥ 0 by

$$\begin{equation*}$$

$$G_n = \sum_{k=0}^n \frac{1}{16^k} \binom{2k}{k}^2 \quad$$

and

$$L_n = \frac{1}{2\pi} \int_{-\pi}^{\pi} \left| \frac{\sin \left((n + \frac{1}{2})t \right)}{\sin \left(\frac{1}{2}t \right)} \right| dt,$$

$$\end{equation*}$$

respectively. We establish sharp bounds for the Landau constants G_n in terms of the digamma and polygamma functions, which improves a result established by Alzer, who provided sharp bounds for G_n in terms of the digamma function. We establish sharp inequalities for $L_{n/2}$ and then used it to derive the asymptotic expansion for $L_{n/2}$.