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# A one-sided power sum inequality

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In this note we prove results of the following types. Let be given distinct complex numbers $z_j$ satisfying the conditions $|z_j| = 1, z_j \not= 1$ for $j=1,..., n$ and for every $z_j$ there exists an $ i$ such that $z_i = \bar{z_j}. $ Then $$\inf_{k} \sum_{j=1}^n z_j^k \leq - 1. $$ If, moreover, none of the numbers $z_j$ is a root of unity, then $$\inf_{k} \sum_{j=1}^n z_j^k \leq - \frac {2} {\pi^3} \log n. $$ The constant -1 in the former result is the best possible. The above results are special cases of upper bounds for $\inf_{k} \sum_{j=1}^n b_jz_j^k$ obtained in this paper.

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