Problema săptămânii 250

Fie $a_1, a_2, \ldots, a_n$ numere reale pozitive şi

$$m = \min\left\{a_1 + \frac{1}{a_2}\,,\ a_2 + \frac{1}{a_3}\,,\ \ldots\,,\ a_{n-1} + \frac{1}{a_n}\,,\ a_n + \frac{1}{a_1}\right\}.$$

Demonstraţi că $\sqrt[n]{a_1 a_2 \cdots a_n} + \dfrac{1}{\sqrt[n]{a_1 a_2 \cdots a_n}} \geq m.$

Problem of the week no. 250

Let $a_1, a_2, \ldots, a_n$ be positive real numbers and let

$$m = \min\left\{a_1 + \frac{1}{a_2}\,,\ a_2 + \frac{1}{a_3}\,,\ \ldots\,,\ a_{n-1} + \frac{1}{a_n}\,,\ a_n + \frac{1}{a_1}\right\}.$$

Prove that $\sqrt[n]{a_1 a_2 \cdots a_n} + \dfrac{1}{\sqrt[n]{a_1 a_2 \cdots a_n}} \geq m.$