



planetmath.org

Math for the people, by the people.

Shapiro inequality

Canonical name	ShapiroInequality
Date of creation	2013-03-22 13:43:15
Last modified on	2013-03-22 13:43:15
Owner	Koro (127)
Last modified by	Koro (127)
Numerical id	7
Author	Koro (127)
Entry type	Theorem
Classification	msc 26D05
Synonym	Shapiro's inequality
Related topic	NesbittsInequality

Let n be a positive integer and let x_1, \dots, x_n be positive reals. If n is even and $n \leq 12$, or n is odd and $n \leq 23$, then

$$\sum_{i=1}^n \frac{x_i}{x_{i+1} + x_{i+2}} \geq \frac{n}{2},$$

where the subscripts are to be understood modulo n .

The particular case of $n = 3$ is also known as Nesbitts inequality.