ROMANIAN MATHEMATICAL MAGAZINE

If $x_1, x_2, x_3 \dots x_n > 0$ *and* $x_{n+1} = x_1,\ x_1 + x_2 + x_3 + \cdots + x_n = 1$ **then:**

$$\sum_{i=1}^{n} \frac{x_i^3}{3x_i + 2x_{i+1}} \geq \frac{1}{5n}$$

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Solution by Mirsadix Muzefferov-Azerbaijan

$$\sum_{i=1}^{n} \frac{x_i^3}{3x_i + 2x_{i+1}} \overset{HOLDER}{\geq} \frac{\left(\sum x_i\right)^3}{n^{3-2}\left(\sum_{i=1}^{n} 3x_i + \sum_{i=1}^{n} 2x_{i+1}\right)} = \frac{1}{n(3+2)} = \frac{1}{5n}$$

$$Equality\ \ holds\ \ for: x_1 = x_2 = x_3 = \cdots = x_n$$