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This month's "free sample" is:

4281★. *Proposé par Šefket Arslanagić.*

Démontrer ou infirmer les inégalités suivantes:

$$\frac{a^2}{b} + \frac{b^2}{c} + \frac{c^2}{a} \geq \sqrt{3(a^2 + b^2 + c^2)}, \quad (a, b, c > 0), \quad (1)$$

$$\frac{a_1^2}{a_2} + \frac{a_2^2}{a_3} + \cdots + \frac{a_n^2}{a_1} \geq \sqrt{n(a_1^2 + a_2^2 + \cdots + a_n^2)}, \quad (a_i > 0, n \geq 3). \quad (2)$$

.....

4281★. *Proposed by Šefket Arslanagić.*

Prove or disprove the following inequalities:

$$\frac{a^2}{b} + \frac{b^2}{c} + \frac{c^2}{a} \geq \sqrt{3(a^2 + b^2 + c^2)}, \quad (a, b, c > 0), \quad (1)$$

$$\frac{a_1^2}{a_2} + \frac{a_2^2}{a_3} + \cdots + \frac{a_n^2}{a_1} \geq \sqrt{n(a_1^2 + a_2^2 + \cdots + a_n^2)}, \quad (a_i > 0, n \geq 3). \quad (2)$$

