

SOCIETATEA DE ȘTIINȚE MATEMATICE DIN ROMÂNIA
ROMANIAN MATHEMATICAL SOCIETY



Filiala Mehedinți - Mehedinți Branch
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In ΔABC :

$$(m_a^7 + m_b^7 + m_c^7) \left(\frac{1}{m_a^3} + \frac{1}{m_b^3} + \frac{1}{m_c^3} \right) \geq s^4, s - \text{semiperimeter}$$

Proposed by Daniel Sitaru – Romania

Solution by Soumava Chakraborty – Kolkata – India

$$(m_a^7 + m_b^7 + m_c^7) \left(\frac{1}{m_a^3} + \frac{1}{m_b^3} + \frac{1}{m_c^3} \right)$$

$$\stackrel{C-B-S}{\geq} (m_a^2 + m_b^2 + m_c^2)^2 = \left\{ \frac{3}{4} (a^2 + b^2 + c^2) \right\}^2$$

$$\text{It suffices to show } \frac{3}{4} (a^2 + b^2 + c^2) \geq s^2 = \frac{(a+b+c)^2}{4}$$

$$\Leftrightarrow a^2 + b^2 + c^2 \geq ab + bc + ca \rightarrow \text{true (Proved)}$$