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In ΔABC the following relationship holds:

$$\frac{m_a\sqrt{h_a}}{w_a} + \frac{m_b\sqrt{h_b}}{w_b} + \frac{m_c\sqrt{h_c}}{w_c} \geq s\sqrt{\frac{2}{R}}$$

Proposed by Bogdan Fuștei – Romania

Solution by Soumava Chakraborty-Kolkata-India

$$\begin{aligned} \sum \frac{m_a\sqrt{h_a}}{w_a} &= \sum \frac{m_a\sqrt{\frac{bc}{2R}}(b+c)}{2bc\sqrt{\frac{s(s-a)}{bc}}} = \frac{1}{2\sqrt{2R}} \sum \left(\frac{m_a}{\sqrt{s(s-a)}} \cdot (b+c) \right) \\ &\geq \frac{1}{2\sqrt{2R}} \sum (b+c) \quad (\because m_a \geq \sqrt{s(s-a)} \text{ and analogs}) \\ &= \frac{4s}{2\sqrt{2R}} = s\sqrt{\frac{2}{R}} \quad (\text{Proved}) \end{aligned}$$