ROMANIAN MATHEMATICAL MAGAZINE

In ΔABC the following relationship holds:

$$\sum \frac{h_a}{bc} \leq \frac{3}{4r}$$

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Solution by Jenish Rijal-Nepal

$$\textit{Let } \Delta \textit{ donote the area of } \Delta ABC.$$

$$\textit{Here, } \sum \frac{h_a}{bc} = \sum \frac{\frac{2\Delta}{a}}{bc} = \sum \frac{2\Delta}{abc} = \sum \frac{2\Delta}{4\Delta \cdot R} = \sum \frac{1}{2R} =$$
$$= \frac{3}{2R} \overset{Euler}{\leq} \frac{3}{2 \cdot 2r} = \frac{3}{4r}$$

$$\textit{Equality holds iff the triangle is equilateral.} \qquad (QED)$$