

PP45493

MIHÁLY BENCZE - ROMANIA

In all triangles ABC holds:

$$s^2 \geq r(10R + 7r)$$

Solution by Daniel Sitaru, Claudia Nănuți.

$$s^2 \stackrel{\text{GERRETSEN}}{\geq} 16Rr - 5r^2 \geq r(10R + 7r) \text{ (to prove)}$$

$$16Rr - 5r^2 \geq 10Rr + 7r^2$$

$$6Rr \geq 12r^2$$

$$R \geq 2r \text{ (Euler)}$$

Equality holds for $a = b = c$.

□

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