In $\triangle ABC$ the following relationship holds:

$$\frac{sinA}{cotA} + \frac{sinB}{cotB} + \frac{sinC}{cotC} \geq \frac{9}{2}$$

Proposed by Nguyen Hung Cuong-Vietnam

Solution by Daniel Sitaru-Romania

$$\sum_{cyc} \frac{sinA}{cotA} = \sum_{cyc} \frac{sin^2 A}{cosA} = \sum_{cyc} \frac{1 - cos^2 A}{cosA} = \sum_{cyc} \frac{1}{cosA} - \sum_{cyc} cosA =$$

$$= \sum_{cyc} secA - \left(1 + \frac{r}{R}\right) \overset{JENSEN}{\geq} 3sec\left(\frac{A+B+C}{3}\right) - 1 - \frac{r}{R} =$$

$$= 3sec\frac{\pi}{3} - 1 - \frac{r}{R} \overset{EULER}{\geq} 3 \cdot 2 - 1 - \frac{1}{2} = \frac{9}{2}$$

Equality holds for $A = B = C$.