

ROMANIAN MATHEMATICAL MAGAZINE

In $\triangle ABC$ the following relationship holds:

$$\sin^2 A \sin 2B + \sin^2 B \sin 2A = 2 \sin A \sin B \sin C$$

Proposed by Nguyen Hung Cuong – Vietnam

Solution by Daniel Sitaru – Romania

$$\begin{aligned} & \sin^2 A \sin 2B + \sin^2 B \sin 2A = \\ &= \sin^2 A \cdot 2 \sin B \cos B + \sin^2 B \cdot 2 \sin A \cos A = \\ &= 2 \sin A \sin B (\sin A \cos B + \sin B \cos A) = \\ &= 2 \sin A \sin B \cdot \sin(A + B) = 2 \sin A \sin B \cdot \sin(\pi - C) = 2 \sin A \sin B \sin C \end{aligned}$$