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A new proof for a Özban conjecture. (Spanish. English summary) Zbl 07556955

Summary: In this paper, we present an elementary short proof of the following algebraic-trigonometric inequality of Laub-Ilani type:
\[ \cos(xy) + \cos(yx) \geq \cos(x^2) + \cos(y^2) \] for \( x, y \in [0, \pi/2] \) which was conjectured by Özban ['New algebraic-trigonometric inequalities of Laub-Ilani type', Bull. Aust. Math. Soc. 96 (2017), 87-97] and recently proved by Matejička ['Proof of one open inequality of Laub-Ilani type', Journal of Mathematical Inequalities, 14 (2020), 83-98]. The proof is based on the properties of the power-exponential and trigonometric functions.

MSC:
26D05 Inequalities for trigonometric functions and polynomials
26D07 Inequalities involving other types of functions
26D20 Other analytical inequalities

Keywords:
Laub-Ilani inequality; trigonometric inequality; algebraic-trigonometric inequality; power-exponential inequality

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References:
, [cited 11 November 2006].

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