Journal of Mathematical Inequalities
Volume 10, Number 3 (2016), 885–888
doi:10.7153/jmi-10-71

ON D'AURIZIO'S TRIGONOMETRIC INEQUALITY

JÓZSEF SÁNDOR

Abstract. We offer new proof of the recent sharp trigonometric inequality $\cos x/\cos(x/2) \geqslant 1-4x^2/\pi^2$ for $x \in (0,\pi/2)$, discovered by Jacopo D'aurizio [1]. The converse inequality, as well as sharp analogous inequalities are pointed out, too.

Mathematics subject classification (2010): 26D05, 26D99.
Keywords and phrases: Inequalities, trigonometric functions, Cusa–Huygens inequality, monotonicity.

REFERENCES

[1] J. D'AURIZIO, *Refinements of the Shafer-Fink inequality of arbitrary uniform precision*, Math. Ineq. Appl. **17** (2014), no. 4, 1487–1498.
[2] J. SÁNDOR, *Two sharp inequalities for trigonometric and hyperbolic functions*, Math. Ineq. Appl. **15** (2012), no. 2, 409–413.
[3] J. SÁNDOR, *On new refinements of Kober's and Jordan's trigonometric inequalities*, Notes Number Theory Discrete Math. **19** (2013), no. 1, 73–83.

Paper JMI-10-71