

MONOTONICITY THEOREMS AND INEQUALITIES FOR THE GAMMA FUNCTION

PÁL A. KUPÁN AND RÓBERT SZÁSZ

Abstract. In this paper monotonicity results concerning the gamma function are deduced. These results lead to inequalities which improve some known bounds for the Γ function.

Mathematics subject classification (2010): 33B15.

Keywords and phrases: Gamma function; monotonic function.

REFERENCES

- [1] H. ALZER, *Inequalities for the gamma function*, Proc. Amer. Math. Soc., **128**, no. 1, (2000), 141–147.
- [2] H. ALZER, N. BATIR, *Monotonicity properties of the gamma function*, Appl. Math. Lett., **20**, no. 7, (2007), 778–781.
- [3] G. D. ANDERSON, M. K. VAMANAMURTHY, M. VOURINEN, *Inequalities for quasiconformal mappings in spaces*, Pacific J. Math, **160**, (1993), 1–18.
- [4] G. E. ANDREWS, R. ASKY, R. ROY, *Special Functions*, Cambridge Univ. Press, Cambridge, 1999.
- [5] N. BATIR, *Monotonicity properties of the gamma function*, Arch. Math., **91**, (2008), 554–563.
- [6] BAI-NI GUO, Y. J. ZHANG, F. QI, *Rafinement and sharpenings of some double inequalities for bounding the gamma function*, J. Inequal. Pure Appl. Math., **9**, no. 1, (2008), Art. 17.
- [7] P. IVÁDY, *A Note on a Gamma Function Inequality*, J. Math. Inequal. **3**, no. 2, (2009), 227–236.
- [8] F. QI, BAI-NI GUO, *An elegant rafinement of a double inequality for the gamma function*, arXiv:1001.1495v1.
- [9] J. L. ZHAO, B. N. GUO, F. QI, *A rafinement of a double inequality for the gamma function*, Publicationes Mathematicae Debrecen, 80/3-4, (2012), 333–343.