

## NEW INEQUALITIES FOR MEANS IN TWO VARIABLES

## LING ZHU

Abstract. In this paper, some bounds for I(x, y) in terms of A(x, y) and L(x, y), and L(x, y) in terms of G(x, y) and I(x, y) are established.

Mathematics subject classification (2000): 26E60, 26D07.

Key words and phrases: Geometric mean; Logarithmic mean; Identric mean; Arithmetic mean; Best constants.

## REFERENCES

- [1] D. S. MITRINOVIC, Analytic inequalities, Springer-Verlag, 1970.
- [2] B. OSTLE AND H. L. TERWILLIGER, A comparison of two means, Proc. Montana Acad. Sci. 17 (1957), 69–70.
- [3] E. B. LEACH AND M. C. SHOLANDER, Extended mean values, J. Math. Anal. Appl. 92 (1983), 207–223.
- [4] J. SANDOR, On the identric and logarithmic means, Aequat. Math. 40 (1990), 261–270.
- [5] H. ALZER, Ungleichungen fur Mittelwerte, Arch. Math. 47 (1986), 422–426.
- [6] K. B. STOLARSKY, The power mean and generalized logarithmic means, Amer. Math. Monthly 87 (1980), 545–548.
- [7] B. C. Carlson, The logarithmic mean, Amer. Math. Monthly 79 (1972), 615–618.
- [8] H. ALZER AND S.-L. QIU, Inequalities for means in two variables, Arch. Math. 80 (2003), 201–215.
- [9] L. ZHU AND J. H. WU, The weighted arithmetic and geometric means of the arithmetic mean and the geometric Mean, Journal of Mathematics for Technology (in Chinese) 14 (1998), 150–154.
- [10] L. ZHU, From chains for mean value Inequalities to Mitrinovic's problem II, Int. J. Educ. Sci. Technol. 36 (2005), 118–125.
- [11] J. SANDOR, A note on some Inequalities for means, Arch. Math. 56 (1991), 471-473.
- [12] J. SANDOR, On certain inequalities for means, II, J. Math. Anal. Appl. 199 (1996), 629–635.
- [13] K. VAMANAMURTHY AND M. VUORINEN, *Inequalities for means*, J. Math. Anal. Appl. **183** (1994), 155–166.
- [14] G. D. ANDERSON, S.-L. QIU, M. K. VAMANAMURTHY, AND M. VUORINEN, Generalized elliptic integral and modular equations, Pacific J. Math. 192 (2000), 1–37.
- [15] I. PINELIS, L'Hospital type results for monotonicity, with applications, J. Inequal. Pure Appl. Math. 3 (2002), article 5, 5 pp. (electronnic).
- [16] M. BIERNACKI AND J. KRZYZ, On the monotonicity of certain functionals in the theory of analytic functions, Ann. Univ. M. Curie-Sklodowska 2 (1955), 134–145.
- [17] S. PONNUSAMY AND M. VUORINEN, Asymptotic expansions and inequalities for hypergeometric functions, Mathematika 44 (1997), 278–301.
- [18] H. ALZER AND S.-L. QIU, Monotonicity theorems and inequalities for the complete elliptic integrals, J. Comput. Appl. Math. 172 (2004), 289–312.

