

A NOTE ON STOLARSKY, ARITHMETIC AND LOGARITHMIC MEANS

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Abstract. We present a way to study differences of some Stolarsky means as a way to discover new inequalities, or place known inequalities in a wider context. In particular, as an application we prove a very sharp upper bound for the difference between the arithmetic and the logarithmic means of two positive numbers.

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REFERENCES

- [1] M. ALOMARI, M. DARUS, S. S. DRAGOMIR, *New inequalities of Hermite-Hadamard type for functions whose second derivative's absolute values are quasi-convex*, unpublished manuscript, online pre-print available at [http://rgmia.org/v12\(E\).php](http://rgmia.org/v12(E).php) (see article 17 on that page).
- [2] B. C. CARLSON, *The logarithmic mean*, Amer. Math. Monthly **79** (1972), 615–618.
- [3] B. C. CARLSON, *Special functions of applied mathematics*, Academic Press, New York 1977.
- [4] E. B. LEACH, M. C. SHOLANDER, *Extended mean values*, Amer. Math. Monthly **85** (1978), 84–90.
- [5] E. B. LEACH, M. C. SHOLANDER, *Extended mean values. II*, J. Math. Anal. Appl. **92** (1983), 207–223.
- [6] E. NEUMANM, Z. PÁLES, *On comparison of Stolarsky and Gini means*, J. Math. Anal. Appl. **278** (2003), 274–284.
- [7] Z. PÁLES, *Inequalities for differences of powers*, J. Math. Anal. Appl. **131** (1988), 271–281.
- [8] C. E. M. PEARCE, J. PEČARIĆ, V. ŠIMIĆ, *Stolarsky means and Hadamard's inequality*, J. Math. Anal. Appl. **220** (1998), 99–109.
- [9] K. B. STOLARSKY, *Generalizations of the logarithmic mean*, Math. Mag. **48** (1975), 87–92.
- [10] K. B. STOLARSKY, *The power and generalized logarithmic mean*, Amer. Math. Monthly **87** (1980), 545–548.