J. Adv. Math. Stud.
Vol. **9**(2016), No. 2, 194-207
http://journal.fairpartners.ro

INEQUALITIES FOR MT-HARMONIC CONVEX FUNCTIONS

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Abstract. In this paper, we introduce a new class of convex functions which is called MT-harmonic convex functions. We establish some Hadamard-type inequalities for MT-harmonic convex functions. Results proved in this paper continue to hold for the special cases.

REFERENCES

[1] G.D. Anderson, M.K. Vamanamurthy and M. Vuorinen: *Generalized convexity and inequalities*, J. Math. Anal. Appl., **335**(2007), 1294-1308.
[2] G. Cristescu and L. Lupsa: *Non-connected Convexities and Applications*, Kluwer Academic Publisher, Dordrechet, Holland, 2002.
[3] C. Hermite: *Sur deux limites d'une intgrale dfinie*, Mathesis, **3**(1883), 82.
[4] J. Hadamard: *Etude sur les proprietes des fonctions entieres e.t en particulier dune fonction consideree par Riemann*, J. Math. Pures Appl., **58**(1893), 171-215.
[5] I, Iscan: *Hermite-Hadamard type inequalities for harmonically convex functions*, Hacet. J. Math. Stat., **43**(2014), No. 6, 935-942.
[6] I. Işcan: *Hermite-Hadamard and Simpson like inequalities for differentiable harmonically convex functions*, J. Math., **2014**(2014), Article ID 346305, 10 pages.
[7] M.V. Mihai, M.A. Noor, K.I. Noor and M.U. Awan: *Some integral inequalities for harmonically h-convex functions involving hypergeometric functions*, Appl. Math. Comput., **252**(2015), 257-262.
[8] C.P. Niculescu and L.E. Persson: *Convex Functions and Their Applications*, Springer-Verlag, New York, 2006.
[9] M.A. Noor, K.I. Noor and M.U. Awan: *Some characterizations of harmonically log-convex functions*, Proc. Jangjeon Math. Soc., **17**(2014), No. 1, 51-61.
[10] M.A. Noor, K.I. Noor, M.U. Awan and S. Costache: *Some integral inequalities for harmonically h-convex functions*, Politehn.Univ. Bucharest Sci. Bull. Ser. A Appl. Math. Phys., **77**(2015), No. 1, 5-16.
[11] M.A. Noor, K.I. Noor and M.U. Awan: *Integral inequalities for coordinated harmonically convex functions*, Complex Var. Elliptic Equ., **60**(2015), No. 6, 776-786.
[12] M.A. Noor, K.I. Noor and S. Iftikhar: *Nonconvex functions and integral inequalities*, Punjab Univ. J. Math. (Lahore), **47**(2015), No. 2 (in press).
[13] M.A. Noor, K.I. Noor and S. Iftikhar: *Some Newtons's type inequalities for harmonic convex functions*, J. Adv. Math. Stud., **9**(2016), No. 1, 7-16.
[14] J. Pecaric, F. Proschan and Y.L. Tong: *Convex Functions, Partial Orderings and Statistical Applications*, Academic Press, New York, 1992.
[15] B.G. Pachpatte: *On some inequalities for convex functions*, RGMIA Res. Rep. Coll., **6**(2003), Supplement, 1-9.
[16] H.N. Shi and J. Zhang: *Some new judgement theorems of Schur geometric and Schur harmonic convexities for a class of symmetric functions*, J. Inequal. Appl., Art. No. 527 (2013).

Received: July 12, 2015. *Revised*: February 24, 2016.
2010 *Mathematics Subject Classification*: 26D15, 26D10, 90C23.
Key words and phrases: MT-convexity, Harmonic convex functions, Hermite-Hadamard inequality.

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[17] M. Tunc, H. Yildirim: *On* MT-*convexity*, 2012, arXiv:1205.5453v1, 6 pages.
[18] M. Tunc: *On some new inequalities for convex functions*, Turk. J. Math., **36**(2012), 245-251.
[19] M. Tunc, Y. Subas and I. Karabayir: *On some Hadamard type inequalities for* MT-*convex functions*, Int. J. Open Probl Comput. Sci. Math., **6**(2013), No. 2, 102-113.
[20] M. Tunc: *Ostrowski type inequalities for functions whose derivatives are* MT-*convex*, J. Comput. Anal. Appl., **17**(2014), 691-696.

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