

# SOME HERMITE-HADAMARD TYPE INEQUALITIES FOR DIFFERENTIABLE CONVEX FUNCTIONS AND APPLICATIONS

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## Abstract

In the paper, the authors offer some new inequalities for differentiable convex functions, which are connected with Hermite-Hadamard integral inequality, and apply these inequalities to special means of two positive numbers.

**Keywords:** Integral inequality, Hermite-Hadamard integral inequality, Convex function, Mean, Application

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## 1. Introduction

In [2], the following Hermite-Hadamard type inequalities for differentiable convex functions were proved.

**1.1. Theorem** ([2, Theorem 2.2]). *Let  $f : I^\circ \subset \mathbb{R} \rightarrow \mathbb{R}$  be a differentiable mapping and  $a, b \in I^\circ$  with  $a < b$ . If  $|f'(x)|$  is convex on  $[a, b]$ , then*

$$(1.1) \quad \left| \frac{f(a) + f(b)}{2} - \frac{1}{b-a} \int_a^b f(x) dx \right| \leq \frac{(b-a)(|f'(a)| + |f'(b)|)}{8}.$$

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