On the weighted fractional integral inequalities for Chebyshev functionals. (English)

Summary: The goal of this present paper is to study some new inequalities for a class of differentiable functions connected with Chebyshev’s functionals by utilizing a fractional generalizated weighted fractional integral involving another function $G$ in the kernel. Also, we present weighted fractional integral inequalities for the weighted and extended Chebyshev’s functionals. One can easily investigate some new inequalities involving all other type weighted fractional integrals associated with Chebyshev’s functionals with certain choices of $\omega(\theta)$ and $G(\theta)$ as discussed in the literature. Furthermore, the obtained weighted fractional integral inequalities will cover the inequalities for all other type fractional integrals such as Katugampola fractional integrals, generalized Riemann-Liouville fractional integrals, conformable fractional integrals and Hadamard fractional integrals associated with Chebyshev’s functionals with certain choices of $\omega(\theta)$ and $G(\theta)$.

MSC:
26A33 Fractional derivatives and integrals
26D10 Inequalities involving derivatives and differential and integral operators
26D15 Inequalities for sums, series and integrals

Keywords:
Chebyshev’s functional; inequalities; fractional integral; weighted fractional integral

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