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Summary: In this paper we extend the trapezoid inequality to the complex integral by providing upper bounds for the quantity
\[ \left| (v-u)f(u) + (w-v)f(w) - \int_{\gamma} f(z)dz \right| \]
under the assumptions that \( \gamma \) is a smooth path parametrized by \( z(t), t \in [a, b], u = z(a), v = z(x) \) with \( x \in (a, b) \) and \( w = z(b) \) while \( f \) is holomorphic in \( G \), an open domain and \( \gamma \in G \). An application for circular paths is also given.

MSC:
26D15 Inequalities for sums, series and integrals
26D10 Inequalities involving derivatives and differential and integral operators
30A10 Inequalities in the complex plane

Keywords:
complex integral; continuous functions; holomorphic functions; trapezoid inequality

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References:


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