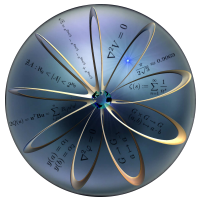

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## complex mean-value theorem

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**Theorem** [?] Suppose $\Omega$ is an open convex set in $\mathbb{C}$, suppose $f$ is a holomorphic function $f : \Omega \to \mathbb{C}$, and suppose $a, b$ are distinct points in $\Omega$. Then there exist points $u, v$ on $L_{ab}$ (the straight line connecting $a$ and $b$ not containing the endpoints), such that

$$\Re\{\frac{f(b) - f(a)}{b - a}\} = \Re\{f'(u)\},$$
$$\Im\{\frac{f(b) - f(a)}{b - a}\} = \Im\{f'(v)\},$$

where $\Re$ and $\Im$ are the `http://planetmath.org/RealPart`real and imaginary parts of a complex number, respectively.

# References

[1] J.-Cl. Evard, F. Jafari, *A Complex Rolle's Theorem*, American Mathematical Monthly, Vol. 99, Issue 9, (Nov. 1992), pp. 858-861.