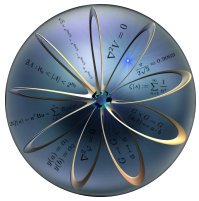

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estimating theorem of contour integral

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Theorem. If f is a continuous complex function on the rectifiable curve γ of the complex plane, then

$$\left|\int_\gamma f(z)\,dz\right| \leqq \max_{z\in\gamma} |f(z)| \cdot l, \tag{1}$$

where

$$l = \int_\gamma |dz|$$

is the of γ.

The form of (1) concerning the continuous real function f on the interval $[a,\, b]$ is

$$\left|\int_a^b f(x)\,dx\right| \leqq \max_{a\leqq x\leqq b} |f(x)| \cdot (b-a).$$

For applications of this important theorem, see the example of using residue theorem.