

$$\left| \int_{\gamma} f(z) dz \right| = \left| \int_a^b f(\gamma(t)) \gamma'(t) dt \right| \leq$$

$$\int_a^b |f(\gamma(t)) \gamma'(t)| dt \leq \int_a^b M |\gamma'(t)| dt =$$

$$= M L(\gamma)$$