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Cauchy integral formula for holomorphic functions

holomorphic

(Cauchy integral formula) Let f be holomorphic in a disk around $z \in \mathbb{C}$ then

$$f^{(n)}(z) = \frac{n!}{2\pi i} \int_{S^1_r} \frac{f(w)}{(w - z)^{n+1}} dw$$



- By the [Cauchy integral formula](#),

$$\begin{aligned} \frac{|f^{(n)}(0)|}{n!} &\leq \frac{1}{2\pi} \frac{\|f\|_{rS^1}}{r^{n+1}} (2\pi r) \\ &= \frac{\|f\|_{rS^1}}{r^n} \end{aligned}$$

at the point of singularity

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And it has 4 siblings.

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