THE MISTAKES BY CAUCHY

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ABSTRACT. I find the mistake in Cauchy’s theorem of Complex variables.

For the zeta function [1] we have

\[ A := \int_C \frac{dx}{x^{s-1}} \]

analytic in the whole complex plain, but for \( s > 1 \)

\[ A = \int_0^\infty \frac{dx}{x^{s-1}} - \left( e^{2\pi i} x \right)^{s-1} \]

for great \( n \)

\[ |A^{(n)}(s)| > |C' \int_0^1 dx \ln^n x (x^{s-1} - (e^{2\pi i} x)^{s-1}) / x| > C|1 - e^{(s-1)\pi i} n! | (s-1)^n|, C > 0.1 \]

This means it has convergent radium \( |s - 1| \). Use this function we can easy to deny the Cauchy’s theorem, which’s proof by Cauchy mistake in the the series of a line that approaches to a point, which’s integration can’t be defined sanely. Calculation evince that the error of the integration in the limit doesn’t converge to zero.

REFERENCES


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