

Assignment 3

Topics of Mathematical Science

Alifian Mahardhika Maulana

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1. Prove by Cauchy's Product formula that:

$$e^{z+w} = e^z e^w, \quad \forall z, w \in \mathbb{C} \quad (1)$$

2. Prove:

Suppose FPS

$$f(z) = \sum_{n=0}^{\infty} a_n (z - z_0)^n$$

converges absolutely on any compact set on $|z - z_0| < R$ and $f'(z) = \sum_{n=1}^{\infty} n a_n (z - z_0)^{n-1}$