

COMPLEX ANALYSIS, HW # 7

Chapter 8, problems 3, 4, 5, 6, 10, 13 and this problem:

Problem 1.

For which values of the parameter $\mu \in \mathbb{R}$, $\mu \geq 0$, the following product converges uniformly on compact sets in \mathbb{C} ?

$$\prod_{n=1}^{\infty} \left(\frac{1}{n^{\mu}} + \exp \left(\frac{1}{\sqrt{n}} \sin \frac{z}{n^{\mu}} \right) \right)$$