# COMPLEX ANALYSIS, HW # 8

Chapter 8, problems 10, 13, 14; Chapter 9, problems 1, 8, and these problems:

## Problem 1.

Show that $\sum_{n=1}^{\infty} \frac{1}{z^2+n^2}$ defines a meromorphic function on $\mathbb{C}$.

## Problem 2.

Prove that product

$$\prod_{n=1}^{\infty} \left( \frac{z^n}{n!} + \exp\left(\frac{z}{2^n}\right) \right)$$

converges uniformly on compact sets to an entire function.