Materials discussed on 4/10

We have discussed the following.

1. Remarks on Homework Ch4 Q1. To show the analyticity, it suffices to show that

$$A_n(z) = \int_0^n f(t)e^{2\pi izt}dt \to A(z)$$

and the convergence is uniform on any compact sets of $\mathbb{H}$.

2. We demonstrate the way to estimate $M(r)$ for

$$F(z) = \prod_{n=1}^{\infty}(1 - e^{-2\pi nt}e^{2\pi iz}).$$

In fact, we have shown that

$$-c_1 + c_2 r^2 \leq \log M(r) \leq c_3 r^2 + c_4$$

for some $c_i > 0$. This show that the order is 2 without considering zeros.

Remark: The method is quite general. And we may argue similarly for summation case by using Jensen's inequality.