第三次作业

请于**四月五日周五（校历第七周）** 当堂上交本次作业。只收纸质版。晚交不收。可以与班上同学讨论合作，请参与合作的同学共同交一份作业，并署上所有参与者姓名。

1. Let $f \not\equiv 0$ be a holomorphic function on the disc $B_r(0)$ in $\mathbb{C}$. Let h_a be a holomorphic function on $B_r(0)$, which satisfies $h_a(0) = 0$ and $h_a(b) = 1$ for any $b^k = a$ (k is a positive integer), where $a \in B_r(0)$ whose norm is small enough. Then we have

$$\int_{B_r(0)} |f|^2 |h_a|^2 > C_1 |a|^{-2}, \tag{1}$$

where C_1 is a positive constant independent of a and h_a.