



COMPLEX VARIABLES
SPRING 2011

ASSIGNMENT 4.1
DUE SEPTEMBER 26

Exercise 1. Let $z = x + iy$ and $A = \{z : x > 0\}$. For $z \in A$ let $\arg z = \arctan(y/x)$ and use this to define a branch of $\log z$ on A . Show that $\log z$ is analytic on A and that

$$\frac{d}{dz} \log z = \frac{1}{z}.$$

Exercise 2. 1.5.13

Exercise 3. 1.5.31

Exercise 4. 1.6.8