

COMPLEX ANALYSIS, HW # 6

Chapter 4, problems 33 (e)-(h), 34 (f)-(i), 56, 58, and these problems:

Problem 1.

Let r be a positive number and a a complex number such that $|a| \neq r$. Evaluate the integral

$$\int_{\partial D(0,r)} \frac{1}{a - \bar{z}} dz$$

Problem 2.

Evaluate the integral

$$\int_{\partial D(0,1)} \frac{dz}{\sin 4z}$$

Problem 3.

Evaluate the integrals

$$\int_{-\pi}^{\pi} \frac{\sin(n\theta)}{\sin \theta} d\theta, \quad n = 1, 2, \dots$$