

Homework 10
Due 8/2/05

Problems 1-5: IX.5.2, IX.5.3, IX.13.1, IX.13.2, IX.13.3.

Problem 6: Consider the function $f(z) = \frac{p(z)}{q(z)}$, where p and q are polynomials of degree m and n , respectively. Let C be the circle of radius R centered at the origin, oriented counterclockwise. Show that for sufficiently large R ,

$$\frac{1}{2\pi i} \int_C \frac{f'(z)}{f(z)} dz = m - n.$$

(Hint: Think about exercises VIII.12.3 and IX.5.2.)