
Homework 9
Due: Friday, October 26

1. [BC] 41.1.
2. [BC] 41.2.
3. [BC] 43.1, 43.2.
4. (a) Let $P(z)$ be a polynomial, and let C be any closed contour. Prove that $\int_C P(z)dz = 0$.
(b) Let f be a function defined on a domain D , and let $C \subset D$ be a closed contour. Suppose you know that for every $\epsilon > 0$ there exists some polynomial $P_\epsilon(z)$ such that, for every point z on the contour C , $|f(z) - P_\epsilon(z)| < \epsilon$.
Prove that $\int_C f(z)dz = 0$.
5. [BC] 43.4.