Complex Analysis 1, Final Study Guide
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4.1 Riemann-Stieltjes Integrals. Bounded variation and total variation of a function $\gamma : [a, b] \to \mathbb{C}$, computation of total variation using an integral (Proposition IV.1.3), Riemann-Stieltjes sum and Riemann-Stieltjes integral, conditions for the existence of a Riemann-Stieltjes integral (Theorem IV.1.4), linearity properties of Riemann-Stieltjes integrals, evaluation of Riemann-Stieltjes integrals of piecewise smooth functions (Theorem IV.1.9), trace of a path, rectifiable path, (line) integral of f along γ, substitution (Proposition IV.1.13), equivalent paths, change of parameter, curve, some properties of integrals (Proposition IV.1.17), our Fundamental Theorem of Calculus (Theorem IV.1.18).

4.2 Power Series Representations of Analytic Functions. Liebniz's Rule (Proposition IV.2.1), relationship between f and an integral of f (Proposition IV.2.6), the integral of a uniform limit of a sequence of functions (Lemma IV.2.7), analytic functions have power series representations (Theorem IV.2.8), computation of integrals using Corollary IV.2.13.