

Review For Test 2

Chapter 6

Definitions: Singularities, Poles, Taylors Series, Laurent Series

Be able to compute Taylor and Laurent series, identify orders of poles. Know Taylor series of $\frac{1}{1-z} e^z, \sin(z), \cos(z)$.

Sample problems 6.26,6.27,

Chapter 7

Definitions: Residue, Cauchy Principal value

Prove $\oint_C f(z)dz = 2\pi ia_{-1}$.

Know and be able to apply the Residue Theorem, Calculate residues, Use residue theory to calculate real integrals

Sample problems 7.47.6,7.10, 7.14

Chapter 8

Definitions: Conformal Map, Jacobian, Bilinear transformation, cross ratio

Prove the mapping $w = f(z)$ of an analytic function $f(z)$ is 1-1 if $f'(z) \neq 0$ pg(243)

Prove Theorem 8.1 pg 243(258-259)

know what bilinear transformations, $e^z, \sin(z)$ do to regions,

Sample problems 8.7, 8.12,

Chapter 9 Definitions: Dirchlet problem(280),Poison integration formulas for the upper half plane and the circle

Derive the Poisson integration Formula for the circle (157-158)

Sample problems 9.6 9.7,9.24