Math 5680 -
Test 2 Study Guide

Topics:
Test 2 covers HW 3, HW 4 – Part 1, HW 4 – Part 2.

Computations / Computational proofs:

- Finding the radius of convergence of a power series
  HW 3 – # 1

- Computing the Taylor / power series for a function.   Determine where it converges / radius of convergence.
  HW 3 - # 2, 3, 5

- More on Taylor series
  HW 3 - # 4

- Computations involving Laurent series.   Computing the Laurent series expansion at z_0; determining what kind of singularity z_0 is; finding the residue at z_0.
  HW 4 - Part 1 - # 1, 2, 5, 6, 7, 9

- Computing the Laurent series in various regions.
  HW 4 - Part 1 - # 3, 4

- Classify the singularity.
  HW 4 – Part 1 - # 8

- Find the residue at z_0
  HW 4 – Part 1 - # 10

- Find / classify the singularities and find the residues.
  HW 4 – Part 2 - # 1, 2, 3

Proofs:

- Proofs on Taylor / power series
  HW 3 - # 6, 8

- Zeros of analytic functions
  HW 3 - # 7

- Proofs involving singularities and residues.
  HW 4 – Part 1 - # 11
  HW 4 – Part 2 - # 4