

## 4680 Test 2 Study Guide

Test 2 covers HW 4, 5, 6, 7.

I will put some problems that are directly from the homework on the test.

A topical breakdown for studying is below.

### Computations:

- Computations with limits and continuity.  
HW 4 - # 1, 2, 3
- Determining where a function is analytic using theorems from class.  
HW 5 - # 1
- Using the Cauchy-Riemann equations to see where a function is analytic, and finding a formula for the derivative of  $f$ .  
HW 5 - # 2, 3
- Computing integrals by parameterizing the curve  $\gamma$  and using the integral formula.  
HW 6 - # 1
- Computing integrals using the above way or the fundamental theorem of calculus.  
HW 6 - # 2, 5
- Drawing a picture of a set and determining if it is path-connected and / or a region.  
HW 7 - # 1

### Proofs:

- Proofs with limits and continuity.  
HW 4 - # 4, 5, 6
- Proofs with derivatives and analytic functions.  
HW 5 - # 4, 5  
HW 7 - # 2
- Bounding an integral with the arclength formula  
HW 6 - # 3, 4