

## Math 1220 Midterm 3 Review Problems

Kelly MacArthur

### Chapter 8 Review (pg 446-447)

Concepts Test Problems #18, 19, 25

Sample Test Problems #22, 24, 27, 28, 31, 33, 37, 38

### Chapter 9 Review (pg 504-507)

Concepts Test Problems #1, 3, 6, 7, 9, 12-21 all, 26, 28

Sample Test Problems #1-41 odd, 14, 24, 28, 30, 34, 38, 40

The exam covers sections 8.3-8.4, 9.1-9.6.

You can bring one 8.5 x 11 inch paper of notes (on both sides, if you want) to use as a reference. I would recommend that you bring the series' test flow chart as that paper, with whatever else you think you'll need written on the back side.

### **Topics:**

- Improper integrals
  - integrating "up to" infinity or "up from" negative infinity or both
  - integrating across or up to a vertical asymptote
  
- Convergent/Divergent Sequences
  - take limit as  $n$  goes to infinity of  $n$ th term of sequence
  - squeeze theorem
  - is it monotonic and bounded?
  
- Absolutely Convergent/Conditionally Convergent/Divergent Infinite Series
  - $n$ th term test for divergence
  - geometric series
  - $p$ -series
  - absolute ratio test (ART)
  - integral test (IT)
  - ordinary comparison test (OCT)
  - limit comparison test (LCT)
  - argument by partial sums
  - alternating series test (AST)
  
- Power Series
  - convergence set & radius of convergence