REVIEW FOR FINAL
MATH 104

The final will look like...

- Several true/false or computation problems, which you don't need to write down the proof.
- 3 problems from the material before second midterm, most likely one problem each on sequences, continuity, and sequences of functions. See the review sheets on the first and second midterm.
- 3 problems from the material after second midterm, i.e. differentiation and integration. See the list below.
- For each problem, the first sub-problem will be about the definition. For example, if the problem is "prove any continuous function on a closed and bounded interval is uniformly continuous", then you'll be asked to write down the precise definition of continuity and uniform continuity.

For the material after the second midterm, you are expected to be able to...

- Write down the precise definition of derivative and do computations based on the definition.
- Prove 28.2, 28.3, 29.1, 29.2, 29.3, 29.4, 29.5, 29.7, 29.8 (some of them are straightforward corollaries of others). e.g. Practice Exam Problem 3
- Compute Taylor series. Prove whether the series converges at certain point using Taylor's theorem. e.g. Practice Exam Problem 6
- Write down the precise definition of: the lower/upper sum of a function with respect to a partition; the lower/upper integral of a function; integrability of a function.
- Prove 32.4, 32.5, 33.1, 33.2, 33.3, 33.4, 33.5, 33.6, 33.9, 34.1. e.g. Practice Exam Problem 4
- Use the definition or Theorem 32.5 to prove the integrability of an explicit function. e.g. Practice Exam Problem 7
- Use fundamental theorem of calculus to compute derivative/integration.