Quiz 6 - July 16th in Tutorial

Quiz 6 will cover Sections 3.4, 4.1, and 4.2 (up to and including Theorem 4.17).

The format of this quiz is the standard one for this course: A Definition, an Application and a Proof. It will be written in the last 15 minutes of tutorial.

Definitions and Statements of Theorems:

- §3.4: Inverse mapping theorem.
- §4.1: Partitions, refinements, lower and upper Riemann sums, lower and upper integrals, Riemann integrability and the Riemann integral, lemma 4.5 (ϵ characterization of integrability), zero content, FTC (4.15).
- §4.2: Double integral, characteristic function.

Examples and Applications:

- §3.4: Demonstrating the effect of a transformation in R^2, examples 1-3, exercises 1-4,6
- §4.1: Calculating the upper and lower Riemann sums, and calculating an integral using the definition of Riemann integral (and the lower and upper integrals.) Checking the integrability of a function using lemma 4.5. Calculating integral using the area under the curve idea, and then applying theorem 4.6.
- §4.2: Calculating a double integral.

Proofs:

- §3.4: Proof of 3.18, exercise 7.
- §4.1: Proof of lemma 4.3, 4.4, 4.5; theorems 4.6, 4.9, 4.10, 4.12, 4.13, 4.15, exercises 1-5,8.
- §4.2: Proofs of 4.17.