Quiz 7 - July 30th in Tutorial

Quiz 7 will cover Sections 5.1(not including Rectifiable Curves), and 5.2.

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:

- §5.1: Definitions of ds and $d\mathbf{x}$, arc length, line integrals of scalar functions and vector fields, and differential forms. Statement and idea of Proposition 5.8..
- §5.2: Simple closed curve, regular region, piecewise smooth boundary, positive orientation, Green's theorem, Divergence form of Green's (Corollary 5.17), normal derivative and Laplacian version of Green's theorem.

Examples and Applications:

- §5.1: evaluating an arc length, performing line integrals of scalar and vector valued functions, Examples 1,2, Exercises 1,4,5,6.
- §5.2: Examples of Green's theorem and corollary 5.17, and the last formula of the section (involving Laplacian.) Examples 1,2,3, Exercises 1-4.

Proofs:

- §5.1: Proof of Proposition 5.8, the argument presented at the bottom of page 217 involving F_{tang} (leading to 5.10), Exercise 7.
- §5.2: Proof of Green's theorem, Corollary 5.14, and the Laplacian version, exercises 5,6,7.