MATH 282 FINAL EXAM STUDY GUIDE

The exam covers Chapters 15 and 16.

How to prepare for this exam:

1. Look over all of your old homework. Make sure that what you wrote down still makes sense.
2. Redo the quizzes. Even if you did them perfectly, redoing it will remind you about the different types of problems.
3. Read over your notes. There are many subtleties that are important to understand. Once you understand these then you understand the material much better.
4. Look over the Review section at the end of chapters 15 and 16.

You will not be able to use your notes, or book on the exam. You can use two note cards 3×5 inches with any formulas you wish.

Review questions:

- True-False quizzes. Page 1101: #1-7,9 and Page 1188: #1-13;
- Page 1102: 3, 5, 7, 9, 10, 11, 13, 15, 17, 18, 19, 20, 21, 23, 24, 25, 29, 30, 33, 35, 37, 39, 40, 42, 44, 45, 47, 48, 55, 56, 57.
- Page 1189: 2–11, 13, 16, 17, 18, 19, 25, 27–30, 32, 33, 34, 36, 37, 38, 39.
- Assigned homework exercises

Vocabulary:

- area and volume
- double and triple Riemann sums, midpoint rule.
- double and triple integrals
- iterated integrals, Fubini's theorem
- rectangular coordinates, polar coordinates
- moments, center of mass
- spherical coordinates
- change of variables in double and triple integrals
- Jacobi matrix, Jacobian determinant
- line integrals
- vector fields
- conservative vector field, potential function, Fundamental Theorem of Calculus
- work of a vector field, curl and divergence
- Green's theorem
- parametrized surfaces, tangent planes, normal vectors, orientation
- surface integrals, flux of a vector field
- Stokes theorem
- Divergence theorem