Guide to Midterm Exam 1

Review all your homework problems and quizzes. Then check the following topics and ask yourself if you understand them. If not sure, you can find related examples from your class note and/or homework problems and practice them.

1. Review section 9.2, study procedure of solving first order linear differential equations.

2. Study integral test, ratio test, root test, Leibniz test and their proof. Makeup a few examples for each test.

3. Review Taylor's Theorem and its proof.

4. Clarify the relation between a function and its Taylor series. For example, how do you generate a Taylor series from a given function? when and where does a function equal the Taylor series it generates?

5. Memorize Taylor series of basic functions on page 620. Then perform differentiation/integration on them and see if you can recognize them from the resulting new series. Also study the multiplication of two Taylor series.

6. Review the application of Taylor series in approximating integrals and the error estimate.

7. Review calculus of parametrized curves, including slope of a parametrized curve, higher order derivatives, and application in surface of revolution and polar coordinates.