

Use the following list of questions as a guide in your review of material of Math 46:

- *The exam is on Friday, 03/22, 3:00 pm – 6:00 pm.*
 - *In the exam, you have to show every step of your calculation.*
 - *A cheating will cause a serious consequence even for your whole life.*
- (1) What is a differential equation?
 - (2) What is the general solution of a differential equation?
 - (3) What is an initial value problem?
 - (4) What is a first order differential equation?
 - (5) What is a separable differential equation?
 - (6) What is a linear equation?
 - (7) What is a homogeneous equation?
 - (8) What is an exact equation?
 - (9) What is a second order differential equation?
 - (10) What is a numerical solution of a differential equation?
 - (11) What is Euler method?
 - (12) What is a fundamental set of solutions of a second order linear homogeneous differential equation?
 - (13) What is the principle of superposition for homogeneous linear differential equations?
 - (14) For second order linear differential equations, how are the solutions of the nonhomogeneous ones related with the solutions of the corresponding homogeneous equations?
 - (15) What is the differential equation describing the continuous compounding problem?
 - (16) Use plain English to describe the meaning of the differential equation given in a Mixing model.
 - (17) What is the differential equation describing an exponential growth?
 - (18) What is the differential equation describing a logistic growth?
 - (19) What is an improper integral?
 - (20) What is the Laplace transform?
 - (21) What is the inverse Laplace transform?
 - (22) How do you use the Laplace transform to solve differential equations?

Review Problems:

§2.1: 13, 16, 18. §2.2: 9, 11, 15, 18. §2.3: 1, 6, 7, 9. §2.5: 15, 20, 21. §2.6: 1, 4, 8, 10. §2.7: 12, 13. §3.1: 1, 2, 5, 6, 9. §3.4: 1, 3, 18, 22. §3.5: 1, 2, 23, 24. §3.6: 1, 2, 7, 13. §3.7: 3, 5, 13. §6.1: 5, 7, 11, 13. §6.2: 1, 3, 7, 11, 12.