

MA 507 Comprehensive Exam – Review

The comprehensive exam will cover the following topics. For each topic, review exercises are listed. Most of them were assigned as Hw problems in MA 507. The test will be closed book. You may use up to three standard sheets of notes.

- 3.4 Solution of homogeneous equations: constant coefficients.
#4(d,g), 6(a,g)
- 3.6 Solution of homogeneous equations: nonconstant coefficients.
#1(a,d) (use the formulas on p.122 without deducing them).
- 3.7 Solution of nonhomogeneous equations.
#2(g,k), 4(g,m)
- 3.9 Systems of linear differential equations.
#5(d,j,k)
- 4.2 Power series solutions.
#7(a,d,g), 11(a)
- 5.4 Laplace transform: application to the solution of differential equations.
#1(a,g,j)
*You need to review 5.3 to solve the problems in 5.4 and 5.5.
A list of relevant Laplace transforms will be provided on the exam.*
- 5.5 Discontinuous forcing functions; Heaviside step function.
#5(a,d), 7(a,d)