

Fall 2012
110.107 Calculus II
Final Exam Practice

1. Learn the following concepts:

- improper integrals (chp 7.4)
- the methods to solve system of linear equations. (i.e. Reduction of Equations, Substitution, Gaussian elimination etc.) (chp 9)
- solutions of separable differential equations and their stability (chp 8)
- matrix algebra (sums, products, inverses) and using matrices to solve systems of linear equations (chp 9)
- functions of two variables: domain, range, partial derivatives, directional derivatives tangent planes, linearization (chp 10.1-10.5)
- finding local extreme points and classifying them (by using Hessian matrix) (chp 10.6)
- systems of linear differential equations and stability of the solutions (chp 11.1)
- counting methods (Permutation, Combination, Multiplication, Combination) (chp 12.1)
- probability, equally likely outcomes (chp 12.2)
- conditional probability and independence, Bayes formula (chp 12.3)

In addition to the homework problems, the following problems might be helpful for the final exam preparation:

2. Section 7.4 (page 362) problems 2, 4, 5, 10, 11, 13, 24, 27, 35, 36
3. Section 8.1 (page 403) problems 4, 12, 14, 20, 27, 28, 30, 33, 40. Section 8.2 (page 417) problems 3, 4

4. Section 9.1 (page 443) problems 2, 5, 6, 12, 18, 25, 26, 34. Section 9.2 (page 465) problems 7, 8, 16, 31b, 35, 42, 49, 51, 52. Section 9.3 (page 487) Problems 34, 40, 42, 46, 54, 55, 62. Section 9.4 (page 500) problems 24, 26, 36, 40.

5. Section 10.1 (page 511) problems 16, 18, 19-22. Section 10.2 (page 518) 10, 12, 16, 19, 20, 25, 26, 32, 34. Section 10.3 (page 525) problems 2, 7, 10, 12, 14, 24, 46, 48. Section 10.4 (page 535) problems 7, 10, 20, 26, 35, 36, 40, 42, 44. Section 10.5 (page 545) problems 10, 11, 18, 32, 35, 41. Section 10.6 (page 569) 3, 7, 8, 18, 24.

6. Section 11.1 (page 606) problems 4, 12, 13, 18, 20, 24, 32, 34, 42.

7. Section 12.1 (page 666) problems 15, 21, 33, 35, 41, 47. Section 12.2 (page 667) problems 16, 18, 28, 37, 40, 50. Section 12.3 (page 687) problems 6, 10, 16, 18, 30, 37, 38.