

Notes on Exam 2, Math 544, Fall 2009

1. Exam 2 is Thursday, October 22, and it covers sections 1.1, 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 3.2, 3.3, 3.4, and 3.5.
2. Be able to define “linear combination”, “linearly independent”, “non-singular”, “the inverse of a matrix”, “null space”, “span”, “column space”, “subspace of \mathbb{R}^n ”, “vector space”, “dimension”, “column space”, “basis”.
3. Be able to state and use the result about the linear dependence of p vectors in m -space. (I call this the Short-Wide Theorem).
4. Be able to state and use the Non-singular Matrix Theorem. This result NOW consists of FOUR equivalent statements. We proved the equivalence of three statements in section 1.7. We proved that a fourth statement is equivalent to the first three in section 1.9.
5. Be able to state the four theorems about dimension.
6. The material on the old exams which is covered on your exam 2:
 - (a) Exam 1's:
 - 97: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - 98: 1, 2, 3, 4, 5, 6, 7, 8, 9.
 - 01: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - 02: 1, 2, 3, 4, 5, 6, 8, 10.
 - 03 (Spring): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - 03 (Summer): 1, 2, 3, 4, 5, 6, 7, 8, 9.
 - 04: 1, 2, 3, 4, 5.
 - 05 (Summer): 1, 2, 3, 4, 5, 6.
 - 05 (Fall): 1, 2, 3, 4, 5, 6.
 - 06 (Summer): all.
 - 06 (Fall): all.
 - 07 (Summer): all
 - 09 : all
 - (b) Exam 2's:
 - 97: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - 98: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 - 01: 1, 2, 7, 8, 9, 10.
 - 02: 1, 6, 7.
 - 03: (Spring): 1, 2, 3, 4abcde, 5, 6, 7, 8.

- 03: (Summer): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
 04: 1, 2, 3, 4, 5, 6, 7, 8.
 05 (Summer): 1, 2, 3, 4, 5, 6, 7.
 05 (Fall): all.
 06 (Summer): 1, 3abcd, 4, 5, 6, 7, 8, 9.
 06 (Fall): all
 07 (Summer): all
- (c) Exam 3's:
 97: 1, 2, 3, 4, 5, 6, 7, 8.
 98: 1, 2, 3, 4, 5, 6, 7, 8, 9.
 01: 3, 4, 5, 8, 9, 10.
 02: 1, 2, 3, 6, 7, 8, 9, 10.
 03 (Spring): 1, 2, 3, 6, 7abc, 8, 9.
 03 (Summer): 1, 2, 3, 4, 5, 6, 7, 8, 9.
 04: 1, 2, 3, 4, 7, 8, 9.
 05 (Summer): 1, 2, 3, 4, 5, 6, 7.
 05 (Fall): 1, 4, 5, 6, 7, 8, 9, 10.
 06 (Fall): 1, 2, 3, 4, 5, 6, 7.
 07 (Summer): 3, 4, 5, 6.
- (d) Exam 4's:
 98: 2, 4, 5, 7.
 01: 1, 2, 3, 4, 5, 8, 9, 10.
 02: 2, 9.
 03: (Spring): 8.
 03: (Summer): 1, 2, 5, 6.
 05 (Summer): 1,2.
 06 (Fall): 2, 9.
- (e) Final Exams:
 97: 1 (You can list four conditions), 3, 4, 6, 7, 8, 9 (Notice that A and b are given above problem 6.), 13, 14, 15, 16.
 98: 1 (You can list four conditions), 2, 4, 5, 6, 7, 11, 12, 14, 17.
 01: 1 (You can list four conditions), 2, 3, 4, 5, 7, 8, 9, 10, 14.
 02: 1 (You can list four conditions), 3, 8, 15, 16.
 03 (Spring): 10, 11, 12, 16, 17, 18, 19.
 03 (Summer): 1, 2, 3, 7, 11, 12, 16, 17.
 04: 1, 4, 6, 8, 12, 13, 14.
 05 (Summer): 1, 2, 5, 8.
 05 (Fall): 1, 2, 3, 6, 7 (You can list four conditions), 8, 14, 15, 16.
 06 (Summer): 1, 2, 3, 6, 7 (You can list four conditions), 8, 12.
 06 (Fall): 1, 2, 3, 6, 11.

07 (Summer): 1, 2, 4.