Preparation sheet for the Final Exam

Problems on this Test will be based on the homework problems listed below.

Note 1: You should check the original homework assignment for hints or notes for any of the problems listed below with an asterisk (e.g., 2*).
Note 2: A problem on the Test may combine concepts of more than one problems listed on this sheet, or it may use only part of the solution of a given homework problem.
Note 3: Groups of problems from the same section that may pertain to different test problems are separated by a space.

When preparing for the Test, it will be beneficial for your performance if you redo the problems listed below, and also review the related examples in the notes and in the book. Please note: It will not help you much if you simply browse those problems without actually doing them.

Disclaimer:
This list of problems is not meant to be exhaustive. Rather, it is meant only to help you pay special attention to specific concepts. As for any test, you are expected to know all concepts that have been covered in the course, unless it is noted otherwise below.

Use of calculators will be allowed. You are also allowed to prepare and bring to the exam your own formulae sheet (2 pages). Other materials, such as books, notes, etc., will not be allowed on the exam.

Note: The way you should prepare the formula sheet is this. As you go over the problems from this review sheet, you will discover that you do not remember some of the theorems or formulae or that you may simply forget them during the test. Then you should put those formulae on your formula sheet. Do not mechanically copy everything from the book or notes; this will not be helpful to you.

2. Sec. 1.3: ## 7, 9, 11, 12*, 13, 15, 16*, 17, 18*, 19, 21.
3. Sec. 1.5: ## 53, 59.
4. Sec. 1.6: ## 26*, 31*, 47.
5. Sec. 1.7: ## 9, 11, 21, 29, 41, 45.
6. Sec. 1.8: ## 7, 27.
7. Sec. 1.9: ## 35, 38*, 39, 41, 43, 45, 49, 51; and # 18* on p. 107.
   Note: The emphasis in a test problem related to this section will be on using the properties of an inverse matrix. Thus, you may save yourself some time by doing matrix multiplication (but not inversion!) in some of these problems with Matlab.
8. Sec. 3.1: ## 19, 23, 27, 29, and Word Problems 1* & 2*.
9. Sec. 3.2: ## 9, 10*, 12*, 15, 16*, 17, 23.
   Do not prove whether a set is a subspace. Instead, focus on the geometric description of the set. For a plane, state whether it goes through the origin and which vector it is perpendicular to. For a line, state whether it goes through the origin and which vector it is aligned with. (See the Notes for Sec. 3.1.)
10. Sec. 3.3: ## 17, 45; 35, 39, 41.
11. Sec. 3.4: ## 11(a–c), 15(a–c), 23(a), 27, 33; 1*, 6*, 7*.
12. Sec. 3.5: ## 15, 17, 19, 29.
13. Sec. 3.6: ## 9, 10*, 11. Note that you are asked to find coordinates of given vectors in orthogonal bases, as was shown in class. The method of doing so is different from the method of finding coordinates shown in Sec. 3.4.
14. Sec. 3.7: ## 25, 29, 30*; 19, 20*.
15. Sec. 3.8: ## 7, 9.
16. Sec. 4.2: ## 13, 15, 17; 24.
17. Sec. 4.4: ## 7, 9, and Word Problem 2* 1; 15, 16, 18(a). You must know Theorems 11 and 13.
19. Sec. 4.7: ## 1, 2, 3, 4, 5; 33*, 35*; 28*, 29*, 30*.
   Note: Since this section was not covered in midterm tests, its share in the final test will be emphasized.

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1This problem was not originally assigned, but doing it will help you to prepare for a problem on the Test.