Review for Mid Term 1

(1) General Instructions. - • The use of class notes, book, formulae sheet or calculator etc. is not permitted.

• You will have to show all the work / reasoning in support of your (correct answer) for full credit.

(2) There will be 5 problems on Mid Term 1.

• Problem 5 will consist of around 5/6 statements and you will be asked to determine whether they are True / False (without any justification).

• Problems 1-4 will roughly cover following topics:

(a) Solving a linear system via Gauss-Jordan elimination.
Recognizing systems with 0, 1 or ∞ number of solutions.
Writing solutions in vector form.

(b) Computing matrix inverse (again via Gauss-Jordan).
Using matrix inverse to solve linear system(s).

(c) Linear dependence / independence of a given collection of vectors.
Writing a vector as a linear combination of others.

(d) Matrix Operations. - addition, scalar multiplication, transpose and (most importantly) matrix multiplication.

(3) Suggestions for reading and practice problems.

(a) Linear Systems. - (Lecture 3 - pages 3-6) (Sections 1.2, 1.3 of the textbook).

Problems*- (1.3) - 23, 24 . (1.5) - 45, 48, 61, 62, 68.

(b) Matrix Inverses. - (Lecture 7 - pages 3-7; Section 1.9 of the textbook)
Lecture 8 - page 8 - summary.

Problems*- (1.9) 16, 17, 18, 29, 31.

(c) Linear independence. (Lecture 8 - pages 4-7; Section 1.7 of the textbook)

Problems* - (1.7) 5, 6, 9, 10, 40, 41

(d) Matrix Multiplication. (and other operations).
(Lecture 4 - pages 4-8; Lecture 5 . Sections 1.5 & 1.6 of textbook)

Problems*- (1.5) 25, 27, 32, 37, 38.

In addition: have a look at the following problems from
Supplementary Exercises: 2, 6, 14, 18
Conceptual Exercises: 3, 4, 5, 9
} at the end of Chapter 1 (p. 105, 107) of textbook

* Problems are listed from the relevant section of the textbook