Preparation sheet for Test 1

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^*). Some problems have more than one Hint or Note, so make sure to *find and use all of them*.
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**.

On Test 1, use of calculators will be allowed (although you will not really need one).
There will be **no** formula sheets available to you during the Test.

Note: If you are asked on the Test to solve a linear system, it is expected that you do so by transforming the corresponding augmented matrix to Reduced Echelon Form (REF).
Your score will be severely reduced if you solve for the unknowns by solving the equations as opposed to using the REF.

1. Sec. 1.2: ## 17, 27, 29, 31.
2. Sec. 1.6: ## 31*, 47, 49*; 57; make sure to know Theorems 8 and 10.
3. Sec. 1.7: ## 17*, 19*, 21*, 48*; make sure to know Theorems 12 and 12* (Thm. 12* is a statement from the notes that is equivalent to Thm. 12, but is stated for a singular matrix).
   Answer for # 48: Nontrivial solution to $c_1\underline{\mathbf{v}}_1 + c_2\underline{\mathbf{v}}_2 + c_3\underline{\mathbf{v}}_3 = \underline{\theta}$ is: $c_1 = \text{arbitrary}$, $c_2 = c_3 = 0$.
4. Sec. 1.8: ## 1, 5.
5. Sec. 1.9: ## 17, 19, 23. Make sure to follow the steps of the REF algorithm precisely.
6. Sec. 3.1: ## 13, 14*, 16*, 18*, 19, 20*, 27, 28*, 29, + Word Problems 1 & 2.