

Honors Linear Algebra (Spring 2011) — Homework 2

- DL-LAA stands for the text (David Lay – Linear Algebra and its Applications).
- The points for each problem is given in parentheses. The total points add up to 75. You will be graded for 70 points, with the possibility of getting up to 5 points as extra credit.
- **This homework is due in class on Thursday, Jan 27.**

1. (8) DL-LAA Problem 14 from Page 25.
2. (10) DL-LAA Problem 16 from Page 25-26.
3. (15) DL-LAA Problem 20 from Page 26.

For Parts (b) and (c), describe the solution(s) of the system, (i.e., write the general solution) as we did in Lecture 3 in class.

4. (12) Mark each of the following statements as TRUE or FALSE. Provide justification for each choice.
 - (a) The echelon form of a matrix is unique.
 - (b) The fifth column of the 3×5 augmented matrix of a system of linear equations is a pivot column. Then the system is inconsistent.
 - (c) The second row of a 3×5 matrix in echelon form is a zero row (i.e., all entries in that row are zero). Then the third column cannot be a pivot column.
 - (d) The 3×4 augmented matrix of a system of linear equations which is inconsistent has four pivot columns.
5. (8) DL-LAA Problem 30 from Page 26. An *underdetermined system* of linear equations has fewer equations than unknowns.
6. (6) DL-LAA Problem 10 from Page 37.
7. (8) DL-LAA problem 22 from Page 38.
8. (8) DL-LAA problem 30 from Page 39.