Honors Linear Algebra (Spring 2011) — Homework 10

- 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, April 7**.

1. (10) DL-LAA Problem 42 from page 200.
2. (7) DL-LAA Problem 4 from page 223.
3. (7) DL-LAA Problem 6 from page 223.
4. (9) DL-LAA Problem 18 from page 223.
5. (15) DL-LAA Problem 24 from page 224.
6. (12) DL-LAA problem 33 from Page 225.
7. (15) Write a MATLAB function that takes as input two $m \times n$ matrices A and B, and outputs the following *two* quantities.

   - An $m \times n$ matrix $C = [c_{ij}]$ whose entries c_{ij} are defined by $c_{ij} = a_{ij}^2 - b_{ij}^2$ for each i, j. Here, a_{ij} and b_{ij} are the correpsonding entries of A and B, respectively.
   - $s = \sum_i \sum_j c_{ij}$, the sum of all all entries in C.

   Illustrate the use of your function for two cases - 4×5 and 3×7. Generate the matrices A and B as you please. Submit (by email or in a printout) the function, and the output showing these calculations.