Honors Linear Algebra (Spring 2011) — Homework 1

- 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 20**.

1. (7) DL-LAA Problem 10 from Page 11.
2. (10) Solve the following system of linear equations.

$$\begin{aligned} x_1 + 2x_2 &= \pi + \sqrt{2} \\ 3x_1 + 4x_2 &= 5\pi + 3\sqrt{2} \end{aligned}$$

3. (8) DL-LAA Problem 18 from Page 11.
4. (8) DL-LAA Problem 22 from Page 12.
5. (12) DL-LAA Problem 24 (a), (b), (c) from Page 12 (`TRUE`/`FALSE`), and instead of (d) given in DL-LAA, consider the following statement.

   d. A system with m linear equations in n variables cannot have a unique solution when $m > n$.

   Give **your own** justifications for each choice of `TRUE` or `FALSE`. Just stating a Theorem number, or Section or a Page number, as specified in the text, will **NOT** be sufficient. You will have to provide your own justification in the Exams, and hence you might as well get some practice here.
6. (12) DL-LAA Problem 33 from Page 12-13.
7. (8) DL-LAA Problem 2 from Page 25.
8. (10) DL-LAA Problem 6 from Page 25.