Linear Algebra (MATH 3333 - 04) Spring 2011
Homework 2

Due: Fri. Feb. 4, start of class

Instructions: Please read the homework policies and guidelines posted on the course webpage. You may **not** use a calculator (or computer). Make sure to write your name, course and section numbers in the top right corner of your solution set, as well as the assignment number on top. Please staple your homework. Sections and exercises refer to the exercises in the required course text.

Reading

Read Sections 1.1, 2.1, 2.2.

Conceptual questions

⋆ Why do we use matrices to solve linear systems of equations?

⋆ What is the benefit of putting a matrix in row echelon or reduced row echelon form?

Written Assignment

Total: 100 points. Each problem is worth 10 points unless otherwise noted.

Section 1.1: 3, 7, 12, 26 (5 pts), 27 (5pts), 30

Section 2.1: 1, 3, 8, 9

Problem A. Solve the following system of equations

$$2x - y + z = 5$$
$$x + 4y + 2z = 1$$
$$3x + y + z = 4$$

by writing it as an augmented matrix and reducing it to row echelon form (not reduced row echelon form). (Write out what row operations you are doing.)

Problem B. Redo Problem A by reducing your augmented matrix to reduced row echelon form. (Write out what row operations you are doing.) Which method do you prefer?

Problem C. Solve the following system of equations

$$x + 2y - z = 1$$
$$2x - y + 3z = 4$$
$$x - 3y + 4z = 2$$

by writing it as an augmented matrix and reducing it to reduced row echelon form. (Write out what row operations you are doing.)