Linear Algebra (MATH 3333) Fall 2007 Section 2
Homework 1

Due: Wed. Jan. 28, 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. Sections and exercises refer to the exercises in the required course text.

Reading

Read Sections 1.1, 2.1, and 2.2 up to the Applications section on p. 103. Skim over the Applications section in 2.2 to get a feel for some applications of systems of linear equations.

Written Assignment

Total: 100 points

Section 1.1: (10 points each) 1, 3, 4, 7, 31 (for all of these, you may solve by any method you like, except for cheating)

Section 2.1: (20 points) 1

Section 2.2: (20 points) 7 (use matrix row reduction)

Problem A: (10 points) Consider a system of two linear equations in two variables:

$$
\begin{aligned}
ax + by &= e \\
cx + dy &= f.
\end{aligned}
$$

On the other hand, these two equations define two lines in the plane. What can you say about the geometry of the two lines if the system is *consistent* (has a solution)? What can you say if the system is inconsistent (has no solution)?

Bonus Question: Read the GPS paragraph in Section 2.2 and do # 34, p. 116.