Math 3592H   **Honors Mathematics I   Fall Semester 2012**

Assignment 4 - Due Thursday 10/4/2012

Read: The rest of Hubbard and Hubbard Section 1.5.

Exercises:
Hand in only the exercises which have stars by them.

Section 1.5: 8, 9, 10* (assume 9 without proof), 12, 13, 14, 15, 19a*, 21c*, 21e*, 22.

Extra questions:
1*. In this question I write vectors as row vectors, because it is easier. Consider the sequence of points in R^2 given by

$$a_n = \left(\frac{1}{(1+n)}, \frac{n}{(1+n)} \right).$$

Find a number M so that $|a_n - (0,1)| < 0.1$ for every n with $n > M$.

2*. Consider the function $f(x,y) = x^2 + y^3 - 3$ which appears in question 14d of Section 1.5. Find a positive number d so that $|(x,y) - (1,2)| < d$ implies $|f(x,y) - 6| < 0.1$.

Comments:
The first mid-term exam will be held in the recitation on Thursday October 4. The material which will appear on the exam will be taken from sections 1.1 - 1.5, together with material such as has appeared in the extra questions I have written out on this assignment sheet and the last. On this exam you may not use any book or notes. I have decided that you may use a calculator during the exam. The issue in my mind here is that some of you may have calculators which calculate determinants and inverses of matrices, and perhaps some other useful things. I will deal with this by not asking questions where it would be an advantage to have such a calculator. You may not bring a computer to the exam.