Math 8202 **Homework 5** **PJW**
Date due: March 2, 2003.

Hand in only the starred questions.

Section 12.2, page 468 nos. 1*, 3*, 5, 6, 18*, 19
Section 12.3, page 479 nos. 1*, 2, 32, 33, 34

This is a light homework load this week. When we have a quiz there is less class time remaining in the week and I cannot cover so much material. This week we are moving on to the Jordan canonical form, but I think we will not have done it by the end of the week, so I cannot set any questions on it.

The first questions on the list above come from Section 12.2, which is about the rational canonical form, but we will not do this. There are, however, some concepts which we need from the start of Section 12.2. These are the notions of eigenvalue, eigenvector, eigenspace, charateristic polynomial, minimal polynomial. We will need Proposition 12 on page 453 and the Cayley-Hamilton theorem, which is Proposition 20(2) on page 458. The proof of the Cayley-Hamilton theorem given in the book uses the rational canonical form, but this is not available to us since we are not doing rational canonical form. I am not sure whether or not to supply a proof of the Cayley-Hamilton theorem – in other words, do you already know it? Perhaps what I should do is distribute a sheet with a proof written out on it.

The questions I have chosen from 12.2 appear to me not to use the rational canonical form, and the questions from 12.3 do not use the Jordan canonical form.