Assignment #4

Due *Thursday, 6 Oct. 2005.*

I. Do exercises

8.1, 8.4,
13.3, 13.10, 13.11, 13.14, 13.19.

II. Do additional exercises:

Exercise B. (This exercise replaces 8.5 which is not clearly stated.) Consider the pair of matrices

$$A = \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}, \qquad B = \begin{pmatrix} 0 & 0 \\ 3 & 4 \end{pmatrix}.$$

Show that the statement "$AB = 0$ implies that either $A = 0$ or $B = 0$" is false. Show (separately) that if $AB = 0$ then either A is singular or B is singular.

Exercise C. Prove formula (8.22), the *parallelogram identity*. Explain by a planar picture why it has this name.