

Linear Algebra
C Term, Sections C01-C04
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Linear Algebra Assignment 3

DUE DATE: Wednesday, January 30, noon. Deliver to your conference PLA. No late assignments will be accepted for credit.

N.B. Keep in mind Professor Martin's rules for completing assignments.

Please complete the following four problems:

1. (a) Using elementary row operations, row reduce the following matrix to upper triangular form:

$$A = \begin{pmatrix} 1 & 2 & 0 & -1 & 1 \\ -1 & 0 & 4 & 2 & -2 \\ 2 & 6 & 5 & 2 & 4 \\ 0 & -2 & 0 & 8 & 13 \\ 1 & 4 & 4 & -3 & 2 \end{pmatrix}$$

1. (b) Recall the effect of elementary row operations on the determinant. **Without computing the determinant directly** find the determinant of matrix A above using the results of part (a). Show your steps!

2. Complete Exercise 14 on page 212
3. Complete Exercise 16 on page 213
4. Complete Exercise 18 on page 213

PROFESSOR MARTIN'S RULES FOR LINEAR ALGEBRA ASSIGNMENTS:

- Write neatly, using correct English.
- Use **only one side** of each sheet of paper.
- Explain your steps. A correct answer with no explanation will earn a grade of zero.
- Use a staple when you submit more than one sheet and want them all back. There is a stapler for public use in the Mathematical Sciences Department Office (SH108).