

# MAT 150A, Fall 2015

## Homework Assignment 5

**Due before the start of the class on Wednesday, November 8**

Please read Sections 4.2, 4.3 and 5.1 of the textbook before starting on the problem set.

**Written Assignment:**

Page 126, problem 2.3; Problems D, E, F.

**D.** Suppose that  $M$  is an  $n \times n$  matrix of finite order. Find all possible values for  $\det(M)$ .

**E.** Consider the set

$$B = \left\{ \begin{pmatrix} a & b \\ 0 & c \end{pmatrix} : a, c \neq 0 \right\}$$

- 1) Prove that  $B$  is a subgroup of  $GL_2$
- 2) Find all elements of  $B$  of finite order.

**F.** Find all possible  $2 \times 2$  orthogonal matrices of finite order.

*The homework must be legible, and written in connected sentences that explains what you are doing. Just the answer (whether correct or not) is not enough. Please put your name and section number on every page and staple the pages together. Homework should be handed in on time, late homework will not be graded.*