

**Math 422: Abstract Algebra II**  
**Homework 5, Due Friday, March 7**

- Do the following problems from the text, using the version of the fundamental theorem for finite abelian groups proved in class.

– Chapter 11: # 6, 10, 15, 19, 22, 29.

- Reduce to normal form the matrix

$$\begin{pmatrix} 2 & 2 & 2 \\ 2 & 2 & 0 \\ 2 & 0 & 2 \end{pmatrix}$$

- Show that if  $G$  is a finitely generated abelian group, every subgroup of  $G$  is finitely generated.