

General Mathematics and CPS II

Exercise 10

March 7, 2014

1. (Ivanov, p. 41, Exercise.) Let R_α denote the reflection about the line $x = \alpha$. Let G be the (symmetry) group generated by the unit translation along the x -axis and by R_0 . Show that $R_\alpha \in G$ if and only if $2\alpha \in \mathbb{Z}$.
2. Using the notation of the previous question, show that if G is generated by H , the point symmetry about the origin, and by R_α , then we must have $4\alpha \in \mathbb{Z}$ and the situation reduces to one of the seven cases considered in class. (Which one?)
3. Draw an ornament corresponding to each of the seven cases considered in class. Make sure that each example has precisely the symmetries of the respective case, and no more.