

28 Chapter: Frieze Groups and Crystallographic Groups

In order to do the exercises in this chapter you will first need to read the section on frieze groups in Chapter 28 of Gallian.

Exercises

28.1 In the frieze group F_6 let x denote a translation generator and y denote a horizontal reflection generator. [See Gallian Figure 28.9] Find a presentation of F_6 in terms of these generators. Enter the group F_6 into GAP using this presentation.

28.2 In the frieze group F_7 let x denote a translation generator, y denote a horizontal reflection generator and z denote a vertical reflection generator. [See Gallian Figure 28.9] Find a presentation of F_7 in terms of these generators. Enter the group F_7 into GAP using this presentation.

28.3 In the frieze group F_7 write x^2yzxz in the form $x^n y^m z^k$ by hand. Use GAP to check your work. [Gallian, Chapter 28, Exercise 3]

28.4 In the frieze group F_7 write $x^{-3}zxxyz$ in the form $x^n y^m z^k$ by hand. Use GAP to check your work. [Gallian, Chapter 28, Exercise 4]

28.5 Use GAP to show that in the frieze group F_7 we have that $yz = zy$ and $xy = yx$ but $xz \neq zx$. [Gallian, Chapter 28, Exercise 5]

28.6 Use GAP to show that in the frieze group F_7 we have that $zxz = x^{-1}$. [Gallian, Chapter 28, Exercise 6]