Course 1214 - Introduction to group theory 2015

S h e e t   8

Due: at the end of the lecture

Exercise 1

Construct the Cayley table for the groups:

(i) the additive group $\mathbb{Z}_3$;

(ii) the multiplicative group $\mathbb{Z}_6^*$;

(iii) the direct product $\mathbb{Z}_2 \times \mathbb{Z}_3$;

(iv) determine whether groups in (i), (ii), (iii) are cyclic are justify your answer.

Exercise 2

Prove that each group of prime order is cyclic.

Exercise 3

Determine all subgroups of each group in Exercise 1.