Theorem 3.1

In a group G there is only one identity element.

Theorem 3.2 (Cancellation Property)

If G is a group $a, b, c \in G$ and either $ac = bc$ or $ca = cb$ then $a = b$.

Theorem 3.3

If G is a group then every element of G has only one inverse element.

Theorem 3.4

If G is a group and $a, b \in G$ then $(ab)^{-1} = b^{-1}a^{-1}$.

Exercise 3.5. Write multiplication tables of all possible groups with 1, 2 and 3 elements.

Exercise 3.6. Write multiplication tables of all possible groups with 4 elements.