

Reading Questions 10

page 59: Definition 2.55

page 59: Lemma 2.56 and its proof

1. The direct product of two set is a set.
2. The direct product of two groups is a group.
3. Let G and H be groups with identity elements e_G and e_H respectively. What is the identity element in $G \times H$?

Section 2.5 Direct Products (Part 1)

Direct Products

- P 1.** Write the multiplication table for $Z_2 \times Z_2$.
- P 2.** Let $(1, 2) \in Z_2 \times Z_3$. What is $o((1, 2))$?
- P 3.** Find a group that is isomorphic to $Z_2 \times Z_2$.
- P 4.** Find groups G and H such that $|G| = |H| = 25$ but G is not isomorphic to H .
- P 5.** Suppose $G \times H$ is abelian. Prove that G and H are abelian.