

Homework 10 (Math461 EO)

Problem 1 (5 points)

In (i) and (ii), find the order of the given elements of the direct product.

(i) $([8], [10]) \in \mathbb{Z}_{12} \times \mathbb{Z}_{18}$.

(ii) $([3], [6], [12], [16]) \in \mathbb{Z}_4 \times \mathbb{Z}_{12} \times \mathbb{Z}_{20} \times \mathbb{Z}_{24}$.

Problem 2 (5 points)

Find all abelian groups, up to isomorphism, of order 360.

Note. The phrase *up to isomorphism* signifies that any abelian group of order 360 should be isomorphic to one of the groups of order 360 exhibited.