

ABSTRACT ALGEBRA A
HOMEWORK 2

1. From the Maxfields' book, do Problems 2-4, 2-9, 2-15, 2-16, (2-18)–(2-25), and 2-27.
2. Let U_n denote the group of units mod n . That is, U_n consists of the elements of \mathbb{Z}_n which are relatively prime in \mathbb{Z} to n , under multiplication. For instance, U_{10} is the multiplicative group containing $\{1, 3, 7, 9\} \subseteq \mathbb{Z}_{10}$.
 - (a) Both U_8 and U_{10} are groups of order 4 (that is, groups with 4 elements). Are they isomorphic to one another? Are there groups of order 4 we have already studied to which one or both is isomorphic?
 - (b) Both U_7 and U_9 are groups of order 6. Are they isomorphic to one another? Are there groups of order 6 we have already studied to which one or both is isomorphic?