

Abstract Algebra 1  
Quiz 10

Name: \_\_\_\_\_

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. There are 7 isomorphism types of abelian groups of order 32. List one group of each isomorphism type.

- (1)  $\mathbb{Z}_{32}$ .
- (2)  $\mathbb{Z}_2 \times \mathbb{Z}_{16}$ .
- (3)  $\mathbb{Z}_4 \times \mathbb{Z}_8$ .
- (4)  $\mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_8$ .
- (5)  $\mathbb{Z}_2 \times \mathbb{Z}_4 \times \mathbb{Z}_4$ .
- (6)  $\mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_4$ .
- (7)  $\mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_2 \times \mathbb{Z}_2$ .