7. Let \( Z \) be the group of integers under addition and let \( H \) be the subgroup of even integers. Are the groups \( Z \) and \( H \) isomorphic? Explain your answer.

\[ \text{(Yes) Both groups are infinite and cyclic, \( (H \) is generated by 2. We know that every infinite cyclic group is isomorphic to \( Z \).) } \]

8. Are the groups \( Z_{15} \) and \( Z_3 \times Z_5 \) isomorphic? (The operation in each of the groups \( Z_{15} \), \( Z_3 \), and \( Z_5 \) is addition.) Explain your answer.

\[ \text{(Yes) \( Z_3 \times Z_5 \) is a cyclic group of order 15. We fixed that every cyclic group of order 15 is isomorphic to \( Z_{15} \).} \]

\( \text{The group } Z_3 \times Z_5 \text{ is generated by } (1,1). \text{ We see that } \]
\[ 10(1,1) = (10,0) \text{ and } 6(1,1) = (0,1). \text{ So } (a,b) = a(1,0) + b(0,1) = 10a(1,1) + 6b(1,1) = (10a + 6b)(1,1). \]