Math 335, Homework 11

Due Wednesday, May 5

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1. Complete the reading for your final project. (Remember, the readings are listed under the topic list on the Final Project Guidelines, and they can all be found in the folder at the top of the course iLearn page.) Write a brief summary of the reading that mentions any key theorems, definitions, or other important ideas.

2. Is $\mathbb{Z}_8 \oplus \mathbb{Z}_2 \cong \mathbb{Z}_4 \oplus \mathbb{Z}_4$?

   (**Hint**: What are the possible orders of elements on both sides?)

3. Use the Fundamental Theorem of Finite Abelian Groups to list all abelian groups of order 360. (Be sure that no two items on your list are isomorphic.)

4. Let
$$G = \{1, 9, 16, 22, 29, 53, 74, 79, 81\},$$
   which is a group under mutliplication modulo 91. To what group of the form $\mathbb{Z}_{n_1} \oplus \cdots \oplus \mathbb{Z}_{n_k}$ is G isomorphic?