Mathematics 220 Homework 8

Hints to homework 8:

4. See the image attached in the folder.

5. Be very careful that the relation is defined on $\mathcal{P}(E)$.

6. Be careful, by $[u]_n$ "has a multiplicative inverse" it means that there exists $[v]_n$ such that $[u]_n \cdot [v]_n = [1]_n$ with multiplication being defined based on the usual modular arithmetic. It is interesting, but not helpful, to note that in this problem, you are partitioning $\mathbb{Z}/n\mathbb{Z}$ based on generators for distinct subgroups of $\mathbb{Z}/n\mathbb{Z}$ under addition where generators lie in the same equivalence class if they generate the same subgroup.

A lot of this is just definition checking. You may find it useful to split some of the questions into cases.