Exercise sheet 2

Curves and Surfaces, MTH201

1. Prove that in any group with at least 2 people, there must exist at least two individuals who know the same number of people.
2. Prove that if from a set of n integers, none of which are a multiple of n, one can choose two whose difference is a multiple of n.
3. Prove that a subset of $\{1, 2, \ldots, 2n+1\}$ with cardinality $n+1$ has a pair of coprime elements.