

Problem: 1

Is $\langle O, + \rangle$ (the odd integers under $+$) an abelian group?

\Rightarrow not a group

Because a group under addition must be closed under the operation. Sum of two odd integers is even, so closure fails: e.g. $1, 3 \in O$ but $1+3=4 \notin O$. Hence $\langle O, + \rangle$ is not even a group. So it cannot be an abelian group.