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- (a) For each $a \in \{0, 1, 2, \dots, 11\}$, describe the cyclic subgroup $\langle a \rangle$ of \mathbb{Z}_{12} .
- (b) What are the generators of \mathbb{Z}_{12} ? What do you notice about the set of generators?
- (c) Draw the subgroup lattice of \mathbb{Z}_{12} .

2 Let G be a group with $|G| = n > 2$. Prove that G cannot have a subgroup H with $|H| = n - 1$.