

1 List all subgroups of \mathbb{Z}_{45} , giving a generator for each. Draw the subgroup lattice.

2 (Judson 4.24 – modified) Let p and q be distinct prime numbers.

- (a) How many generators does \mathbb{Z}_{pq} have?
- (b) How many generators does \mathbb{Z}_{p^2} have?