

Random Quiz 11B

1. Assume G is Abelian, and $|G| = p^n m$, where p is a prime with $p \nmid m$.

$$\text{Set } H = \{x \in G \mid x^{p^n} = e\}$$

$$K = \{x \in G \mid x^m = e\}.$$

What do we know about H and K ?

2. Suppose G is a finite Abelian group, and

$$G = H_1 \times H_2 \times \dots \times H_m, \text{ and}$$

$$G = K_1 \times K_2 \times \dots \times K_n,$$

where all of the H_i 's and K_j 's are of prime power order and cyclic. What do we know about the H_i 's and K_j 's?