

IMMERSE Algebra Homework - Summer 2005
Exponent of a Group

95. (a) Prove that any finite group has finite exponent.
(b) Give an example of an infinite group with finite exponent.
(c) Does a finite group of exponent m always contain an element of order m ? Explain.
96. Let G be a finite abelian group. Prove

$$\text{exp}(G) = \text{lcm}\{\text{o}(g) \mid g \in G\}$$

- (a) is finite necessary?
(b) is abelian necessary?