Reading Questions 21

page 115: Theorem 5.13 and its proof

1. Let G be a group such that H is a subgroup of G. Then $|G|$ divides $|H|$.

2. Let G be a group such that H is a subgroup of G. What is $|G:H|$?

Section 5.2 Lagrange Theorem (Part 1)

Lagrange Results

P 1. Let $G = S_5$ and $H =< (12) >$. What is $|G:H|$?

P 2. Let G be a group such that $|G| = n$. Prove $a^n = e$.

P 3. Let G be a finite group such that $H \leq K \leq G$. Prove $|G:K| \cdot |K:H| = |G:H|$.