

ALGEBRA 1

HOMEWORK ASSIGNMENT IX

(Turn in underlined problems.)

Read Sections 6.1, 6.2.

<u>SECTION</u>	<u>PROBLEMS</u>
3.4	11
6.1	1, <u>3</u> , 4, 6, 9, <u>17</u>
6.2	1, 4

ADDITIONAL PROBLEMS

1. Show that if every proper subgroup of a finite group G is abelian, then G is solvable.

2. Show that if k is finite and $G \leq A_5^k$, then $G \cong S \times A_5^\ell$ for some $\ell \leq k$ and some solvable group S .

Challenge Problem #8 (Prize = 1 coin) Find a finite upper bound on the size and number of finite groups with exactly n conjugacy classes.