

## Section 5.2 Lagrange Theorem (Part 1)

### Lagrange Results

**P 1.** Let  $G = S_5$  and  $H = \langle (12) \rangle$ . 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  $|G : K| \cdot |K : H| = |G : H|$ .