

HOMEWORK 4, DUE WEDNESDAY OCTOBER 26TH

1. For Chapter 3, Section 1: 1, 5.
2. For Chapter 3, Section 2: 1, 2, 3(a), (f), 8 (a), (f).
3. Find the conjugate of $\sigma = (1, 4, 7, 2)(3, 6, 5) \in S_7$ by $\tau = (1, 2, 3)(4, 7, 5)$.
What is the order of σ and τ ?
4. Find an element $\tau \in S_7$ that carries $\sigma = (1, 2, 5)(3, 6, 7, 4)$ into $\sigma' = (3, 1, 4)(2, 7, 6, 5)$, that is find $\tau \in S_7$ such that

$$\sigma' = \tau\sigma\tau^{-1}.$$

5. **Challenge Problems** Show that the transposition $(1, 2)$ and the n -cycle $(1, 2, 3, 4, \dots, n)$ generate S_n .