

Assignments, January 26

9. (1 pt) List all 6 elements of S_3 and give the cayley table.
10. (1 pt) (1.3.1 from the book) Let σ be the permutation
 $1 \mapsto 3 \quad 2 \mapsto 4 \quad 3 \mapsto 5 \quad 4 \mapsto 2 \quad 5 \mapsto 1$
and τ be the permutation
 $1 \mapsto 5 \quad 2 \mapsto 3 \quad 3 \mapsto 2 \quad 4 \mapsto 4 \quad 5 \mapsto 1$
Find the cycle decompositions of each of the following permutation: $\sigma, \tau, \sigma^2, \sigma\tau, \tau\sigma,$
and $\tau^2\sigma$.
11. (2 pts) Find all subgroups of S_3 and show the subset containments between them
(you'll probably want to do this in one big diagram).