

on board { Goal: Within your lifetime, understand $G = \langle g_1, \dots, g_m \rangle \subset S_n$:
 1. $|G| = ?$ 2. $\sigma \in G?$ 3. $\sigma = W(g_1, \dots, g_m)$ 4. random

Algorithm as in handout.

Claim 1 Every σ_{ij} in T is in G .

Claim 2 Anything fed to T is now a monotone product $\sigma_{1j_1} \sigma_{2j_2} \sigma_{3j_3} \dots$ $j_i \geq i$

Claim 3 IF two monotone products are equal,

$$\sigma_{1j_1} \dots \sigma_{nj_n} = \sigma_{1j'_1} \dots \sigma_{nj'_n}$$

then all the indices are equal, $\forall i \ j_i = j'_i$.

Claim 4 Let $M_k = \{ \text{monotone products beginning with } k \} = \{ \sigma_{kj_k} \dots \sigma_{nj_n} \}$,

then for every k , $M_k \cdot M_k \subset M_k$ (and so each

M_k is a subgroup of S_n).

Claim 5 $M_1 = G$ and we have achieved all of our goals [except there is a hidden problem].

→ then do goals 1, 2, 3, 4 and the 0: "in our lifetime".