

The way to look at a permutation and compute
of needed rungs (at minimum)

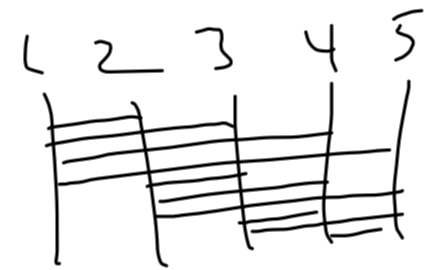
1 2 3 4 5 6 7 8 (1 4 7)(2 5)(3 8 6)
7 5 6 1 2 8 4 3 2 + 1 + 2 = 5 rungs

HW#2 Q#3 - Sample, Full-credit answer.

Each short rung swaps an adjacent pair, either fixing or creating exactly 1 inversion. So, starting from home position, in order to create k inversions, we will need at least k rungs, since each rung can create at most 1 inversion.

HW # 2 Q # 4:

With 1 rung on

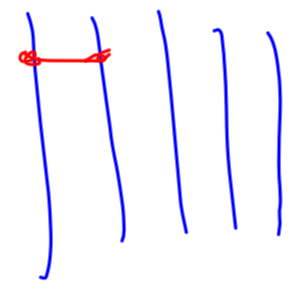


we can create 10 different permutations

- 10 places to put it
- Each place generates a different/unique perm.

Q # 5 Case 1 - same place - generates identity. ④

Case 2 Disjoint rungs.



10 choices for first rung.

3 choices for second.

Case 3: $10 \cdot \frac{6}{2} = 30$

$10 \cdot \frac{3}{2} = 15$