

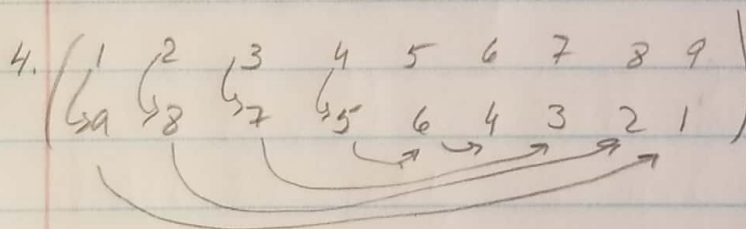
Quiz 7.

1. Guido Gaudi proved that $1-1+1-1\dots = \frac{1}{2}$.
 He came about the proof by theorizing that a father has two sons and each year gives a bauble alternatively to each son. Then, each son has it $\frac{1}{2}$ of time.

2. Mme Du Châtelet translated 'Principia' into French

Voltaire wrote 'Lettres sur les anglais'

3. Joseph Lagrange proved the four square theorem.



Disjoint cycles: $(19)(28)(37)(456)$

Smallest i s.t. π^i is identity = $\text{LCM}(2,3) = \boxed{6}$

5. $\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & \end{pmatrix}$ has 0 inversions. However

$\begin{pmatrix} 3 & 2 & 1 \\ 4 & 5 & 6 \\ 7 & 8 & \end{pmatrix}$ has 3 inversions: $\{32, 31, 21\}$.

Therefore, if you start with the first square you need to find moves that will result

in a net of 3 inversion. But by the lemma it is possible.