1. Compute the products $fg$ and $gf$ for the permutations $f = (1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7)$, $g = (1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7)$.

2. Write the following permutations as products of disjoint cycles:
   - $(1 \ 2)(1 \ 3)(1 \ 4)(1 \ 5)$,
   - $(1 \ 2 \ 3)(2 \ 3 \ 4)(3 \ 4 \ 5)$,
   - $(1 \ 2 \ 3 \ 4)(2 \ 3 \ 4 \ 5)$,
   - $(1 \ 2)(2 \ 3)(3 \ 4)(4 \ 5)(5 \ 1)$.

3. Present the following permutation as a product of disjoint cycles for all $k$:
   - $(1 \ 2 \ 3)^k = (1 \ 2 \ 3) \cdots (1 \ 2 \ 3), \quad k \text{ times}$

4. Find the number of even and odd permutations in $S_n$ for $n = 1, 2, 3, 4$. 