quiz 03.1

(1) You flipped a fair coin 71 times in a row, out of which there were 28 heads and 43 tails. What is the probability that the next flip will be a head?

(2) As in double anagramming: How many simultaneous permutations of the two strings ‘HQGY’ and ‘GHYQ’ do not have ‘H’ adjacent to ‘Q’ and do not have ‘G’ adjacent to ‘Y’ in either rearranged string?

(3) Compute $P^4$, where $P$ is the permutation

$$P = \begin{pmatrix}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 \\
9 & 4 & 14 & 1 & 13 & 10 & 8 & 5 & 11 & 7 & 2 & 6 & 12 & 3
\end{pmatrix}$$

(4) Determine the order of the permutation

$$\begin{pmatrix}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 & 11 & 12 & 13 & 14 \\
7 & 11 & 5 & 8 & 13 & 1 & 2 & 4 & 10 & 6 & 9 & 3 & 14 & 12
\end{pmatrix}$$