

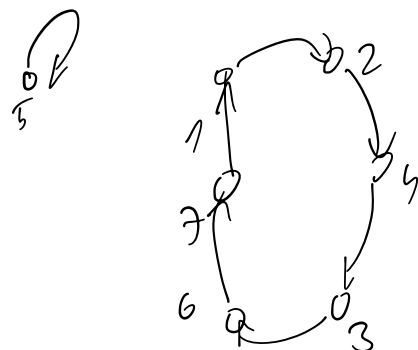
$$p = (2, 4, 6, 3, 5, 7, 1), q = (3, 6, 7, 4, 5, 2, 1), p \circ q$$

Uřei grafy, cykly, vzhled na transpozice, počet inverzí, znaménko a inverzní permutaci.

$$1, 2, 3, 4, 5, 6, 7$$

$$2, 4, 6, 3, 5, 7, 1$$

$$1, 2, 3, 4, 5, 6, 7$$



$$(1, 2, 4, 3, 6, 7)$$

$$(1, 2) \circ (2, 4) \circ (4, 3) \circ (3, 6) \circ (6, 7) \circ (7, 1) \circ (5, 5)$$

$$\# \text{ inverzí} = 8$$

$$\text{sgn}(p) = +1$$

$$p^{-1} = (7, 1, 4, 2, 5, 3, 6)$$

Počet permutací na $2, 3, 4, 5$ a 6 prvků?

Vždy je to $n!$

$$\eta = (2, 4) \in S_4$$

$$\sum q \circ p : p \in A \}$$

Společně determinovat:

$$\begin{matrix} + & - \\ \{(1, 2), (2, 1)\} \end{matrix}$$

$$\text{nad } \mathbb{R} \begin{pmatrix} 7 & -1 \\ 5 & -2 \end{pmatrix}$$

$$-14 + 5 = -9$$

$$\begin{pmatrix} 7 & -3 \\ 6 & -6 \end{pmatrix}$$

$$-42 + 18 = -24$$

$$\text{nad } \mathbb{C} \begin{pmatrix} 2-i & i+3 \\ i-3 & 2+i \end{pmatrix}$$

$$5 + 10 = 15$$

$$(2-i) \cdot (2+i) = 2^2 - i^2 = 5$$

$$(i+3) \cdot (i-3) = i^2 - 3^2 = -10$$

$$\begin{matrix} \oplus & \oplus & \ominus \end{matrix}$$

$$\text{nad } \mathbb{Z}_5: \begin{pmatrix} 1 & 2 & 3 \\ 4 & 4 & 1 \\ 2 & 3 & 3 \end{pmatrix}$$

$$\begin{matrix} \{(1, 2, 3), (2, 2, 1), (1, 3, 2), \\ (2, 1, 3), (3, 1, 2), (3, 2, 1)\} \end{matrix}$$

$$\begin{matrix} \ominus & \oplus & \ominus \end{matrix}$$

$$12 + 4 - 3 - 24 + 36 - 25 = \underline{\underline{1}}$$

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Převodem na trojitéhermitovu matici:

$$\frac{5}{7} \cdot -\frac{3}{7} = -\frac{15}{7} - \frac{42}{7}$$

$$\text{nad } \mathbb{R} \begin{pmatrix} 7 & -3 \\ 5 & -6 \end{pmatrix} \sim \begin{pmatrix} 7 & -3 \\ 0 & -\frac{27}{7} \end{pmatrix} \quad \det(A) = 7 \cdot -\frac{27}{7} = \underline{\underline{-27}}$$

$$\text{nad } \mathbb{Z}_3 \begin{pmatrix} 1 & 2 & 3 \\ 4 & 4 & 1 \\ 2 & 3 & 3 \end{pmatrix} \sim \begin{pmatrix} 1 & 2 & 3 \\ 0 & 1 & 4 \\ 0 & 4 & 2 \end{pmatrix} \sim \begin{pmatrix} 1 & 2 & 3 \\ 0 & 1 & 4 \\ 0 & 0 & 1 \end{pmatrix}$$

$$\underline{\underline{\det(A) = 1}}$$