

1.

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ 4 & \frac{3}{2} & 1 & 0 \\ 9 & \frac{5}{3} & \frac{602}{327} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -2 & 8 & 3 \\ 0 & 6 & 17 & 10 \\ 0 & 0 & -\frac{109}{2} & -37 \\ 0 & 0 & 0 & \frac{2883}{109} \end{bmatrix}$$

3.

$$\begin{pmatrix} -10 & 17 & 9 \\ 5 & 6 & 6 \\ 11 & -12 & -20 \end{pmatrix}$$

4.

$$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 3 & 5 & 6 & 1 & 4 \end{pmatrix}; \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 \\ 2 & 3 & 1 & 4 & 5 & 6 \end{pmatrix}$$

5.

$$\sigma = (1, 8, 3, 9, 2, 7)(4, 6, 5), \text{ord} = 6, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 7 & 9 & 6 & 4 & 5 & 1 & 3 & 2 \end{pmatrix} = (1, 8, 3, 9, 2, 7)(4, 6, 5)$$

6. Id;(3, 4);(1, 2, 5, 7, 6);(1, 2, 5, 7, 6) (3, 4);

(1, 5, 6, 2, 7);(1, 5, 6, 2, 7) (3, 4);(1, 6, 7, 5, 2);(1, 6, 7, 5, 2) (3, 4);(1, 7, 2, 6, 5);

(1, 7, 2, 6, 5) (3, 4);

$$7. \frac{70(-70)^n}{73} + \frac{3 \cdot 3^n}{73}$$

$$8. 3 + -4 * x + -1 * x^2 + 1 * x^3 + 1 * x^4$$

9. При  $\lambda = 8$

10. Определитель:  $17\lambda + 63$ , при  $\lambda = [-63/17]$  ранг равен 3, иначе 4