

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{2} & 1 & 0 & 0 \\ 1 & \frac{17}{35} & 1 & 0 \\ -3 & -\frac{26}{35} & -\frac{814}{123} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & -8 & 7 & -2 \\ 0 & 35 & -\frac{69}{2} & -1 \\ 0 & 0 & \frac{123}{70} & \frac{52}{35} \\ 0 & 0 & 0 & -\frac{727}{123} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & 16 & -8 \\ -15 & 6 & -4 \\ 1 & -18 & 3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 8, 4, 9, 5, 2)(3, 7), \text{ord} = 14, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 8 & 7 & 2 & 6 & 9 & 3 & 5 & 1 \end{pmatrix} = (1, 4, 2, 8, 5, 6, 9)(3, 7)$$

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

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

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

$$7. \frac{20(-20)^n}{83} + \frac{63 \cdot 63^n}{83}$$

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

9. При $\lambda = 0$

10. Определитель: $-69\lambda - 94$, при $\lambda = [-94/69]$ ранг равен 3, иначе 4