

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ 1 & -\frac{1}{2} & 1 & 0 \\ 1 & 0 & 30 & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & 9 & 7 & 5 \\ 0 & 24 & 19 & 9 \\ 0 & 0 & -\frac{1}{2} & \frac{15}{2} \\ 0 & 0 & 0 & -240 \end{bmatrix}$$

3.

$$\begin{pmatrix} 17 & 6 & -9 \\ 16 & -7 & -11 \\ 13 & 19 & -16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 4, 7, 6, 9, 3)(2, 5), \text{ord} = 14, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 5 & 8 & 6 & 2 & 3 & 9 & 7 & 1 \end{pmatrix} = (1, 4, 6, 3, 8, 7, 9)(2, 5)$$

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

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

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

7. $-5 \cdot 10^n + 6 \cdot 12^n$

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

9. При $\lambda = 5$

10. Определитель: $10\lambda - 810$, при $\lambda = [81]$ ранг равен 3, иначе 4