

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{10}{9} & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ \frac{4}{9} & -\frac{8}{17} & -\frac{241}{153} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -6 & -1 & 3 \\ 0 & -\frac{17}{3} & \frac{35}{9} & \frac{10}{3} \\ 0 & 0 & 3 & -8 \\ 0 & 0 & 0 & -\frac{3269}{153} \end{bmatrix}$$

3.

$$\begin{pmatrix} 1 & 15 & 5 \\ 17 & 18 & -7 \\ 4 & -15 & 6 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{5(-30)^n}{7} + \frac{2 \cdot 12^n}{7}$$

$$8. 0 + -2 * x + 1 * x^2 + 2 * x^3 + -4 * x^4$$

9. При $\lambda = -10$

10. Определитель: $-89\lambda - 1264$, при $\lambda = [-1264/89]$ ранг равен 3, иначе 4