

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 2 & 1 & 0 & 0 \\ -1 & 1 & 1 & 0 \\ 0 & 2 & \frac{7}{2} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 5 & 4 & 6 \\ 0 & -5 & -3 & -4 \\ 0 & 0 & 2 & 14 \\ 0 & 0 & 0 & -51 \end{bmatrix}$$

3.

$$\begin{pmatrix} 1 & -19 & 17 \\ -17 & -8 & 11 \\ 3 & -4 & 1 \end{pmatrix}$$

4.

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

5.

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

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

$$7. -\frac{20 \cdot 20^n}{29} + \frac{49 \cdot 49^n}{29}$$

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

9. При $\lambda = 1$

10. Определитель: $28 - 88\lambda$, при $\lambda = [7/22]$ ранг равен 3, иначе 4