

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ 0 & \frac{3}{2} & 1 & 0 \\ -\frac{1}{2} & -\frac{15}{4} & -\frac{7}{26} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & -7 & -1 & 5 \\ 0 & 2 & -1 & 2 \\ 0 & 0 & -\frac{13}{2} & -4 \\ 0 & 0 & 0 & \frac{77}{13} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & -6 & 2 \\ 19 & -18 & -2 \\ 10 & 6 & -19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 8, 3, 9, 4)(2, 7, 5), \text{ord} = 6, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 5 & 8 & 9 & 7 & 1 & 2 & 6 & 3 \end{pmatrix} = (1, 4, 9, 3, 8, 6)(2, 5, 7)$$

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

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

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

$$7. \frac{5(-10)^n}{29} + \frac{24 \cdot 48^n}{29}$$

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

9. При $\lambda = -6$

10. Определитель: $291\lambda - 203$, при $\lambda = [203/291]$ ранг равен 3, иначе 4