

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{2} & 1 & 0 & 0 \\ 0 & -\frac{3}{2} & 1 & 0 \\ -1 & \frac{5}{2} & \frac{1}{3} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 6 & 6 & 7 \\ 0 & 2 & 3 & \frac{7}{2} \\ 0 & 0 & -\frac{9}{2} & \frac{37}{4} \\ 0 & 0 & 0 & -\frac{71}{6} \end{bmatrix}$$

3.

$$\begin{pmatrix} -11 & 5 & 0 \\ -15 & 11 & -4 \\ -1 & 7 & 17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 9, 8, 5, 7, 2)(4, 6), \text{ord} = 14, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 9 & 5 & 6 & 1 & 4 & 3 & 2 & 7 \end{pmatrix} = (1, 8, 2, 9, 7, 3, 5)(4, 6)$$

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

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

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

7. $\frac{24 \cdot 24^n}{23} - \frac{1}{23}$

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

9. При $\lambda = 8$

10. Определитель: $360 - 95\lambda$, при $\lambda = [72/19]$ ранг равен 3, иначе 4