

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ -\frac{7}{2} & \frac{43}{42} & 1 & 0 \\ \frac{7}{2} & -\frac{53}{42} & -\frac{71}{149} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & 5 & -6 & 4 \\ 0 & 21 & -15 & 17 \\ 0 & 0 & -\frac{149}{14} & -\frac{563}{42} \\ 0 & 0 & 0 & -\frac{2206}{447} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & -15 & -6 \\ -16 & -9 & -16 \\ 9 & 2 & 19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 7, 3, 9)(2, 5, 6, 4), \text{ord} = 20, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 5 & 1 & 2 & 6 & 4 & 9 & 3 & 8 \end{pmatrix} = (1, 7, 9, 8, 3)(2, 5, 6, 4)$$

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

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

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

7. $-6(-12)^n + 7(-14)^n$

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

9. При $\lambda = 7$

10. Определитель: $226 - 92\lambda$, при $\lambda = [113/46]$ ранг равен 3, иначе 4