1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{3} & 1 & 0 & 0 \\ -\frac{3}{2} & \frac{9}{34} & 1 & 0 \\ \frac{1}{2} & -\frac{9}{17} & -\frac{73}{45} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 4 & 1 & -6 \\ 0 & -\frac{34}{3} & \frac{2}{3} & 9 \\ 0 & 0 & \frac{45}{34} & -\frac{591}{34} \\ 0 & 0 & 0 & -\frac{463}{30} \end{bmatrix}$

3.

$$\begin{pmatrix} 18 & 6 & -19 \\ -15 & -13 & 11 \\ -11 & -6 & -1 \end{pmatrix}$$

4.

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

5.

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

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

7. $-\frac{4^n}{17} + \frac{18 \cdot 72^n}{17}$

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

9. При $\lambda = -7$

10. Определитель: $85\lambda - 743$, при $\lambda = [743/85]$ ранг равен 3, иначе 4

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