

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -6 & \frac{17}{12} & 1 & 0 \\ -9 & \frac{8}{3} & -\frac{236}{115} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & 7 & 9 & -9 \\ 0 & 24 & 37 & -28 \\ 0 & 0 & \frac{115}{12} & -\frac{52}{3} \\ 0 & 0 & 0 & -\frac{4359}{115} \end{bmatrix}$$

3.

$$\begin{pmatrix} 2 & 0 & -15 \\ 0 & 1 & -12 \\ 4 & 5 & 11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7, 8, 3, 9)(2, 4, 6, 5), \text{ord} = 20, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 5 & 1 & 2 & 6 & 4 & 3 & 9 & 7 \end{pmatrix} = (1, 8, 9, 7, 3)(2, 5, 6, 4)$$

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

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

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

7. $-5 \cdot 20^n + 6 \cdot 24^n$

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

9. При $\lambda = -2$

10. Определитель: $-92\lambda - 352$, при $\lambda = [-88/23]$ ранг равен 3, иначе 4