

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{6}{7} & 1 & 0 & 0 \\ -\frac{8}{7} & \frac{1}{13} & 1 & 0 \\ -\frac{6}{7} & \frac{34}{13} & \frac{41}{114} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & 8 & 5 & 0 \\ 0 & \frac{13}{7} & -\frac{5}{7} & -2 \\ 0 & 0 & \frac{114}{13} & -\frac{89}{13} \\ 0 & 0 & 0 & \frac{763}{114} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & 19 & 18 \\ -19 & -8 & -4 \\ -10 & -10 & -10 \end{pmatrix}$$

4.

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

5.

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

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

$$7. -\frac{27(-27)^n}{13} + \frac{40(-40)^n}{13}$$

$$8. 0 + -2 * x + -4 * x^2 + 2 * x^3 + -1 * x^4$$

9. При $\lambda = -5$

10. Определитель: $-36\lambda - 240$, при $\lambda = [-20/3]$ ранг равен 3, иначе 4