

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 7 & 1 & 0 & 0 \\ -4 & 4 & 1 & 0 \\ 1 & -\frac{1}{2} & -\frac{7}{52} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -1 & -5 & 2 \\ 0 & -2 & 32 & -9 \\ 0 & 0 & -156 & 38 \\ 0 & 0 & 0 & \frac{34}{13} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & 8 & 14 \\ 13 & 12 & -20 \\ 10 & 2 & 17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 4, 8, 7)(2, 9, 3, 5), \text{ord} = 20, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 9 & 5 & 7 & 2 & 8 & 6 & 1 & 3 \end{pmatrix} = (1, 4, 7, 6, 8)(2, 9, 3, 5)$$

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

7. брак

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

9. При $\lambda = -4$

10. Определитель: $60\lambda + 759$, при $\lambda = [-253/20]$ ранг равен 3, иначе 4