

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -2 & 1 & 0 & 0 \\ 2 & -2 & 1 & 0 \\ -\frac{5}{4} & \frac{15}{16} & -\frac{237}{176} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 6 & -1 & -3 \\ 0 & 8 & 7 & -10 \\ 0 & 0 & 11 & -6 \\ 0 & 0 & 0 & \frac{39}{11} \end{bmatrix}$$

3.

$$\begin{pmatrix} -15 & 18 & 12 \\ -12 & 18 & -13 \\ 19 & -13 & 14 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. брак

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

9. При $\lambda = -5$

10. Определитель: $235\lambda - 135$, при $\lambda = [27/47]$ ранг равен 3, иначе 4