

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{8} & 1 & 0 & 0 \\ \frac{3}{8} & -\frac{63}{41} & 1 & 0 \\ -\frac{9}{8} & \frac{37}{41} & -\frac{409}{436} & 1 \end{bmatrix}, U = \begin{bmatrix} 8 & -3 & -4 & 9 \\ 0 & \frac{41}{8} & -\frac{21}{2} & \frac{101}{8} \\ 0 & 0 & -\frac{436}{41} & \frac{739}{41} \\ 0 & 0 & 0 & \frac{3767}{436} \end{bmatrix}$$

3.

$$\begin{pmatrix} 18 & 15 & 11 \\ 6 & -16 & -15 \\ -16 & -1 & 8 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. $-5(-25)^n + 6(-30)^n$

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

9. При $\lambda = 5$

10. Определитель: $-6\lambda - 468$, при $\lambda = [-78]$ ранг равен 3, иначе 4