

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{2} & 1 & 0 & 0 \\ -\frac{9}{4} & \frac{43}{4} & 1 & 0 \\ \frac{3}{4} & \frac{5}{4} & \frac{77}{579} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 6 & -10 & -3 \\ 0 & 2 & -15 & \frac{3}{2} \\ 0 & 0 & \frac{579}{4} & -\frac{215}{8} \\ 0 & 0 & 0 & \frac{3415}{1158} \end{bmatrix}$$

3.

$$\begin{pmatrix} 1 & -3 & 8 \\ 15 & -15 & -13 \\ -13 & -9 & -7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 2)(3, 6, 5, 8, 7, 9), \text{ord} = 6, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 9 & 1 & 6 & 3 & 8 & 5 & 7 \end{pmatrix} = (1, 2, 4)(3, 9, 7, 8, 5, 6)$$

6. Id; (5, 6); (2, 4); (2, 4) (5, 6);

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

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

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

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

7. $-7(-28)^n + 8(-32)^n$

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

9. При $\lambda = 1$

10. Определитель: $88 - 12\lambda$, при $\lambda = [22/3]$ ранг равен 3, иначе 4