

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{8}{3} & 1 & 0 & 0 \\ -\frac{5}{2} & \frac{5}{2} & 1 & 0 \\ -\frac{2}{3} & 2 & -\frac{26}{3} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & -3 & -3 & 3 \\ 0 & -2 & -3 & 10 \\ 0 & 0 & -\frac{3}{2} & -21 \\ 0 & 0 & 0 & -207 \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & -16 & 3 \\ 17 & 17 & 11 \\ -9 & -5 & -12 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. $10 \cdot 10^n - 9 \cdot 9^n$

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

9. При $\lambda = 3$

10. Определитель: $-160\lambda - 883$, при $\lambda = [-883/160]$ ранг равен 3, иначе 4