

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ \frac{1}{3} & 2 & 1 & 0 \\ -\frac{2}{3} & -2 & \frac{5}{26} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & -6 & 2 & 0 \\ 0 & 5 & -1 & -8 \\ 0 & 0 & -\frac{26}{3} & 12 \\ 0 & 0 & 0 & -\frac{173}{13} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & 15 & 8 \\ -9 & 6 & -17 \\ -12 & 15 & 15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 7, 6, 2, 4, 9)(3, 8), \text{ord} = 14, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 5 & 8 & 7 & 4 & 1 & 9 & 3 & 6 \end{pmatrix} = (1, 2, 5, 4, 7, 9, 6)(3, 8)$$

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

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

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

7.  $-(-4)^n + 2(-8)^n$

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

9. При  $\lambda = 0$

10. Определитель:  $46\lambda$ , при  $\lambda = [0]$  ранг равен 3, иначе 4