

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{3} & 1 & 0 & 0 \\ \frac{5}{3} & 0 & 1 & 0 \\ \frac{5}{3} & \frac{9}{29} & -\frac{402}{29} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 9 & 9 & -5 \\ 0 & -29 & -23 & \frac{56}{3} \\ 0 & 0 & 1 & -\frac{25}{3} \\ 0 & 0 & 0 & -\frac{10090}{87} \end{bmatrix}$$

3.

$$\begin{pmatrix} 1 & 11 & -15 \\ -4 & 3 & 18 \\ 6 & 15 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7, 8, 3, 5, 9, 2)(4, 6), \text{ord} = 14, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 8 & 2 & 6 & 1 & 4 & 5 & 9 & 7 \end{pmatrix} = (1, 3, 2, 8, 9, 7, 5)(4, 6)$$

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

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

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

$$7. -\frac{4 \cdot 4^n}{3} + \frac{7 \cdot 7^n}{3}$$

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

9. При  $\lambda = 4$

10. Определитель:  $-38\lambda - 172$ , при  $\lambda = [-86/19]$  ранг равен 3, иначе 4