

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ \frac{5}{6} & -\frac{5}{27} & 1 & 0 \\ \frac{5}{6} & -\frac{32}{27} & -\frac{103}{95} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -8 & 7 & -3 \\ 0 & -9 & 3 & 7 \\ 0 & 0 & -\frac{95}{18} & -\frac{119}{54} \\ 0 & 0 & 0 & \frac{2966}{285} \end{bmatrix}$$

3.

$$\begin{pmatrix} -10 & 12 & -17 \\ -17 & -3 & 18 \\ 5 & -17 & 14 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 9, 3, 5, 8, 4)(6, 7), \text{ord} = 14, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 9 & 5 & 1 & 8 & 7 & 6 & 4 & 3 \end{pmatrix} = (1, 2, 9, 3, 5, 8, 4)(6, 7)$$

6. Id; (5, 7); (3, 5) (6, 7); (3, 5, 6, 7);

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

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

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

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

$$7. \frac{49(-49)^n}{57} + \frac{8 \cdot 8^n}{57}$$

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

9. При  $\lambda = 8$

10. Определитель:  $-52\lambda - 424$ , при  $\lambda = [-106/13]$  ранг равен 3, иначе 4