

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -6 & 1 & 0 & 0 \\ 3 & -\frac{5}{14} & 1 & 0 \\ 8 & -\frac{3}{14} & \frac{167}{17} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 1 & 8 & -3 \\ 0 & 14 & 53 & -17 \\ 0 & 0 & -\frac{85}{14} & -\frac{43}{14} \\ 0 & 0 & 0 & \frac{740}{17} \end{bmatrix}$$

3.

$$\begin{pmatrix} -1 & 15 & -5 \\ 7 & 17 & -11 \\ 5 & -4 & -8 \end{pmatrix}$$

4.

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

5.

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

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

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

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

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

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

$$7. -\frac{10 \cdot 10^n}{17} + \frac{27 \cdot 27^n}{17}$$

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

9. При  $\lambda = -10$

10. Определитель:  $-55\lambda - 30$ , при  $\lambda = [-6/11]$  ранг равен 3, иначе 4