

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{4} & 1 & 0 & 0 \\ \frac{1}{2} & \frac{4}{43} & 1 & 0 \\ \frac{7}{4} & \frac{19}{43} & \frac{122}{37} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -10 & -3 & -8 \\ 0 & \frac{43}{2} & \frac{21}{4} & 5 \\ 0 & 0 & \frac{259}{86} & \frac{238}{43} \\ 0 & 0 & 0 & \frac{57}{37} \end{bmatrix}$$

3.

$$\begin{pmatrix} -20 & 9 & -10 \\ -6 & 4 & -18 \\ -2 & 0 & -14 \end{pmatrix}$$

4.

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

5.

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

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

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

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

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

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

$$7. \frac{49(-49)^n}{85} + \frac{36 \cdot 36^n}{85}$$

$$8. 0 + 2 * x + 3 * x^2 + 1 * x^3 + 2 * x^4$$

9. При $\lambda = 7$

10. Определитель: $-5\lambda - 169$, при $\lambda = [-169/5]$ ранг равен 3, иначе 4