

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{5} & 1 & 0 & 0 \\ -\frac{2}{5} & \frac{28}{9} & 1 & 0 \\ -\frac{4}{3} & \frac{35}{9} & \frac{11}{52} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & -8 & -7 & -3 \\ 0 & -3 & -\frac{5}{2} & -\frac{19}{2} \\ 0 & 0 & -\frac{26}{9} & \frac{167}{9} \\ 0 & 0 & 0 & \frac{1925}{52} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 16 & -5 \\ -13 & -3 & -8 \\ 2 & -8 & -2 \end{pmatrix}$$

4.

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

5.

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

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

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

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

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

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

$$7. \frac{(-40)^n}{3} + \frac{2 \cdot 80^n}{3}$$

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

9. При $\lambda = 5$

10. Определитель: $-10\lambda - 410$, при $\lambda = [-41]$ ранг равен 3, иначе 4