

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{8} & 1 & 0 & 0 \\ 1 & -\frac{80}{9} & 1 & 0 \\ -\frac{1}{8} & \frac{65}{9} & -\frac{475}{631} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & -1 & -10 & 0 \\ 0 & -\frac{9}{8} & \frac{55}{4} & 9 \\ 0 & 0 & \frac{1262}{9} & 75 \\ 0 & 0 & 0 & -\frac{342}{631} \end{bmatrix}$$

3.

$$\begin{pmatrix} -14 & 7 & -3 \\ 4 & -15 & -7 \\ 12 & -13 & 15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 8, 3, 6)(2, 4)(7, 9), \text{ord} = 10, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 4 & 8 & 2 & 1 & 3 & 9 & 5 & 7 \end{pmatrix} = (1, 6, 3, 8, 5)(2, 4)(7, 9)$$

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

7. $-5 \cdot 20^n + 6 \cdot 24^n$

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

9. При $\lambda = -5$

10. Определитель: $78\lambda - 763$, при $\lambda = [763/78]$ ранг равен 3, иначе 4