

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ -\frac{1}{2} & \frac{13}{32} & 1 & 0 \\ \frac{7}{2} & -\frac{7}{32} & \frac{191}{67} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & 3 & -10 & 5 \\ 0 & 16 & -28 & 14 \\ 0 & 0 & \frac{67}{8} & -\frac{179}{16} \\ 0 & 0 & 0 & \frac{1803}{134} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & -10 & 19 \\ 19 & -4 & 10 \\ -7 & 10 & 1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 4, 8, 2, 5, 7)(3, 6), ord = 14, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 4 & 6 & 1 & 8 & 3 & 2 & 9 & 7 \end{pmatrix} = (1, 5, 8, 9, 7, 2, 4)(3, 6)$$

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

$$7. \frac{3(-24)^n}{10} + \frac{7 \cdot 56^n}{10}$$

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

9. При $\lambda = 4$

10. Определитель: $87\lambda + 234$, при $\lambda = [-78/29]$ ранг равен 3, иначе 4