

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ \frac{5}{2} & 2 & 1 & 0 \\ \frac{9}{2} & -4 & -\frac{79}{23} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & -2 & -3 & -10 \\ 0 & -2 & \frac{11}{2} & 1 \\ 0 & 0 & -\frac{23}{2} & 31 \\ 0 & 0 & 0 & \frac{3553}{23} \end{bmatrix}$$

3.

$$\begin{pmatrix} 11 & 18 & -16 \\ -15 & -2 & 6 \\ -11 & 5 & 2 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 4, 9, 8, 3, 7)(5, 6), \text{ord} = 14, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 7 & 9 & 6 & 5 & 1 & 3 & 8 \end{pmatrix} = (1, 2, 4, 9, 8, 3, 7)(5, 6)$$

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

$$7. \frac{5(-40)^n}{11} + \frac{6 \cdot 48^n}{11}$$

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

9. При $\lambda = 1$

10. Определитель: $552 - 40\lambda$, при $\lambda = [69/5]$ ранг равен 3, иначе 4