

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{2} & 1 & 0 & 0 \\ 7 & \frac{45}{68} & 1 & 0 \\ \frac{4}{4} & \frac{37}{68} & -\frac{339}{49} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & -10 & -10 & 0 \\ 0 & 34 & 23 & 9 \\ 0 & 0 & -\frac{49}{68} & -\frac{405}{68} \\ 0 & 0 & 0 & -\frac{2357}{49} \end{bmatrix}$$

3.

$$\begin{pmatrix} 5 & -4 & 12 \\ 18 & -1 & -20 \\ 8 & 2 & 1 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{48(-48)^n}{49} + \frac{1}{49}$$

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

9. При $\lambda = 0$

10. Определитель: $-15\lambda - 249$, при $\lambda = [-83/5]$ ранг равен 3, иначе 4