1.

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

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

3.

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

4.

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

5.

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

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