1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ -\frac{1}{3} & \frac{14}{39} & 1 & 0 \\ \frac{8}{3} & \frac{23}{39} & -\frac{781}{113} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & 4 & 4 & 1 \\ 0 & -13 & 4 & -2 \\ 0 & 0 & \frac{113}{39} & -\frac{232}{39} \\ 0 & 0 & 0 & -\frac{4249}{113} \end{bmatrix}$

3.

$$\begin{pmatrix} -18 & 18 & 12 \\ 12 & 4 & -1 \\ -6 & -16 & 19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,3,8,7)(2,5,4,9,6), ord = 20, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 9 & 8 & 2 & 6 & 4 & 1 & 7 & 5 \end{pmatrix} = (1,3,8,7)(2,9,5,6,4)$$

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

7. $\frac{64(-64)^n}{113} + \frac{49 \cdot 49^n}{113}$

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

9. При $\lambda = 1$

10. Определитель: $324 - 28\lambda$, при $\lambda = [81/7]$ ранг равен 3, иначе 4