1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{9}{2} & 1 & 0 & 0 \\ -1 & -\frac{8}{57} & 1 & 0 \\ -1 & -\frac{20}{57} & \frac{179}{83} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & 7 & 2 & 8 \\ 0 & -\frac{57}{2} & -13 & -36 \\ 0 & 0 & -\frac{332}{57} & -\frac{96}{19} \\ 0 & 0 & 0 & \frac{354}{83} \end{bmatrix}$

3.

$$\begin{pmatrix} 18 & -15 & -6 \\ -20 & -6 & -17 \\ -16 & 2 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,4,3,6,8)(2,7,9,5), ord = 20, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 7 & 6 & 3 & 2 & 8 & 9 & 1 & 5 \end{pmatrix} = (1,4,3,6,8)(2,7,9,5)$$

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

7. $\frac{45(-90)^n}{52} + \frac{7 \cdot 14^n}{52}$

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

9. При $\lambda = 1$

10. Определитель: $-126\lambda - 1484$, при $\lambda = [-106/9]$ ранг равен 3, иначе 4