1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ -2 & \frac{6}{5} & 1 & 0 \\ \frac{7}{5} & -\frac{42}{25} & -\frac{3}{220} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & -1 & -1 & 7 \\ 0 & -5 & 4 & 2 \\ 0 & 0 & -\frac{44}{5} & \frac{48}{5} \\ 0 & 0 & 0 & -\frac{842}{55} \end{bmatrix}$

3.

$$\begin{pmatrix} -17 & -16 & -6 \\ 3 & -17 & 17 \\ 15 & -8 & 18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,9,6,8,2)(3,5,7,4), ord = 20, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 6 & 5 & 3 & 7 & 1 & 4 & 9 & 2 \end{pmatrix} = (1,8,9,2,6)(3,5,7,4)$$

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

7. $\frac{50(-50)^n}{57} + \frac{7 \cdot 7^n}{57}$

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

9. При $\lambda = 5$

10. Определитель: $176 - 48\lambda$, при $\lambda = [11/3]$ ранг равен 3, иначе 4