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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ -\frac{3}{4} & 1 & 1 & 0 \\ \frac{5}{8} & 2 & \frac{31}{38} & 1 \end{bmatrix}, U = \begin{bmatrix} 8 & 0 & 3 & -4 \\ 0 & 3 & 3 & -7 \\ 0 & 0 & -\frac{19}{4} & -6 \\ 0 & 0 & 0 & \frac{433}{38} \end{bmatrix}$

3. $$\begin{pmatrix} 17 & -13 & 18 \\ -2 & -1 & -8 \\ 0 & -20 & -19 \end{pmatrix}$$

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

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

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

7. $\frac{2(-4)^n}{11} + \frac{9 \cdot 18^n}{11}$

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

9. При $\lambda = 8$

10. Определитель: $-90\lambda - 237$, при $\lambda = [-79/30]$ ранг равен 3, иначе 4