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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -5 & \frac{13}{14} & 1 & 0 \\ 1 & -\frac{1}{2} & \frac{77}{141} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -3 & -8 & -2 \\ 0 & -14 & -29 & -13 \\ 0 & 0 & -\frac{141}{14} & \frac{57}{14} \\ 0 & 0 & 0 & \frac{107}{47} \end{bmatrix}$

3. $$\begin{pmatrix} -12 & -9 & 16 \\ -18 & 8 & 0 \\ 18 & -12 & -5 \end{pmatrix}$$

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

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

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

7. $-2(-16)^n + 3(-24)^n$

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

9. При $\lambda = -7$

10. Определитель: 4, при $\lambda = []$ ранг равен 3, иначе 4