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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{10} & 1 & 0 & 0 \\ 1 & \frac{130}{99} & 1 & 0 \\ -\frac{3}{5} & -\frac{74}{99} & -\frac{377}{178} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & -9 & -5 & -5 \\ 0 & \frac{99}{10} & -\frac{7}{2} & -\frac{7}{2} \\ 0 & 0 & \frac{356}{99} & \frac{752}{99} \\ 0 & 0 & 0 & \frac{1377}{89} \end{bmatrix}$

3. $$\begin{pmatrix} -8 & 2 & -9 \\ 18 & -6 & -2 \\ -4 & -2 & 11 \end{pmatrix}$$

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

5. $$\sigma = (1,2,5)(3,6,4,8,9,7), ord = 6, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 5 & 6 & 8 & 1 & 4 & 3 & 9 & 7 \end{pmatrix} = (1,2,5)(3,6,4,8,9,7)$$

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

7. $-\frac{7(-7)^n}{65} + \frac{72(-72)^n}{65}$

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

9. При $\lambda = -4$

10. Определитель: $33\lambda + 132$, при $\lambda = [-4]$ ранг равен 3, иначе 4