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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ -\frac{1}{3} & -\frac{1}{3} & 1 & 0 \\ \frac{5}{9} & -\frac{4}{9} & -\frac{83}{93} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -10 & 7 & -3 \\ 0 & 1 & -3 & 5 \\ 0 & 0 & \frac{31}{3} & \frac{5}{3} \\ 0 & 0 & 0 & \frac{128}{93} \end{bmatrix}$

3. $$\begin{pmatrix} 4 & 7 & 4 \\ -17 & -6 & -18 \\ -10 & 5 & -10 \end{pmatrix}$$

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

5. $$\sigma = (1,3,4,8,2)(5,9,6,7), ord = 20, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 8 & 1 & 3 & 7 & 9 & 6 & 4 & 5 \end{pmatrix} = (1,2,8,4,3)(5,7,6,9)$$

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

7. $10^n n + 10^n$

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

9. При $\lambda = -1$

10. Определитель: $521 - 177\lambda$, при $\lambda = [521/177]$ ранг равен 3, иначе 4