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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 8 & 1 & 0 & 0 \\ -1 & \frac{5}{17} & 1 & 0 \\ 3 & 1 & \frac{272}{351} & 1 \end{bmatrix}$, $U = \begin{bmatrix} -1 & 3 & -4 & 0 \\ 0 & -17 & 26 & -1 \\ 0 & 0 & -\frac{351}{17} & -\frac{165}{17} \\ 0 & 0 & 0 & \frac{1465}{117} \end{bmatrix}$

3. $$\begin{pmatrix} -17 & 5 & -12 \\ -11 & 4 & 8 \\ -20 & 4 & -14 \end{pmatrix}$$

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

5. $$\sigma = (1,9,5,7,8,2,4)(3,6), ord = 14, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 9 & 6 & 5 & 2 & 3 & 4 & 1 & 8 \end{pmatrix} = (1,7,4,5,2,9,8)(3,6)$$

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

7. $-\frac{7(-28)^n}{3} + \frac{10(-40)^n}{3}$

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

9. При $\lambda = 3$

10. Определитель: $200 - 38\lambda$, при $\lambda = [100/19]$ ранг равен 3, иначе 4