1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ \frac{7}{9} & -\frac{19}{27} & 1 & 0 \\ \frac{10}{9} & -\frac{17}{54} & \frac{35}{218} & 1 \end{bmatrix}, U = \begin{bmatrix} -9 & 7 & 2 & -5 \\ 0 & 12 & 5 & -12 \\ 0 & 0 & -\frac{109}{27} & -\frac{23}{9} \\ 0 & 0 & 0 & -\frac{395}{218} \end{bmatrix}$

3.

$$\begin{pmatrix} -15 & 14 & 1 \\ 6 & -8 & 1 \\ -19 & -18 & 13 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,3)(2,4,8,7,5,9,6), ord = 14, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 4 & 1 & 8 & 9 & 2 & 5 & 7 & 6 \end{pmatrix} = (1,3)(2,4,8,7,5,9,6)$$

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

7. $\frac{2(-8)^n}{17} + \frac{15 \cdot 60^n}{17}$

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

9. При $\lambda = 3$

10. Определитель: $150\lambda - 368$, при $\lambda = [184/75]$ ранг равен 3, иначе 4