1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 1 & \frac{9}{8} & 1 & 0 \\ 1 & \frac{1}{8} & -1 & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & -8 & -1 & -4 \\ 0 & 8 & 0 & -7 \\ 0 & 0 & -6 & \frac{79}{8} \\ 0 & 0 & 0 & \frac{43}{4} \end{bmatrix}$

3.

$$\begin{pmatrix} 14 & -2 & 19 \\ 13 & 14 & 9 \\ 15 & -9 & -6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,3,5)(2,8,4,7,9,6), ord = 6, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 8 & 5 & 7 & 1 & 2 & 9 & 4 & 6 \end{pmatrix} = (1,3,5)(2,8,4,7,9,6)$$

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

7. брак

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

9. При $\lambda = -1$

10. Определитель: $118\lambda - 39$, при $\lambda = [39/118]$ ранг равен 3, иначе 4