

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ -\frac{5}{4} & -\frac{19}{16} & 1 & 0 \\ \frac{3}{2} & -\frac{15}{8} & \frac{862}{83} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 1 & 8 & -9 \\ 0 & 4 & -17 & 17 \\ 0 & 0 & -\frac{83}{16} & \frac{15}{16} \\ 0 & 0 & 0 & \frac{3124}{83} \end{bmatrix}$$

3.

$$\begin{pmatrix} 0 & 11 & -8 \\ 16 & -13 & 16 \\ -19 & 11 & 4 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 6, 3, 8, 5, 7)(2, 4), ord = 14, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 4 & 1 & 2 & 6 & 7 & 3 & 9 & 5 \end{pmatrix} = (1, 8, 9, 5, 6, 7, 3)(2, 4)$$

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

7. брак

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

9. При  $\lambda = -7$

10. Определитель:  $28\lambda - 350$ , при  $\lambda = [25/2]$  ранг равен 3, иначе 4