

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -2 & 1 & 0 & 0 \\ -\frac{5}{3} & \frac{11}{7} & 1 & 0 \\ -1 & \frac{11}{7} & -\frac{19}{30} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 3 & -9 & -6 \\ 0 & 7 & -10 & -16 \\ 0 & 0 & -\frac{30}{7} & \frac{162}{7} \\ 0 & 0 & 0 & \frac{184}{5} \end{bmatrix}$$

3.

$$\begin{pmatrix} -8 & -15 & 11 \\ 9 & -3 & 16 \\ -7 & -18 & -4 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 7, 9)(2, 8)(3, 6, 5), \text{ord} = 12, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 8 & 6 & 1 & 3 & 5 & 4 & 2 & 7 \end{pmatrix} = (1, 9, 7, 4)(2, 8)(3, 6, 5)$$

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

7. брак

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

9. При $\lambda = 4$

10. Определитель: $283 - 77\lambda$, при $\lambda = [283/77]$ ранг равен 3, иначе 4