

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ \frac{5}{2} & \frac{25}{2} & 1 & 0 \\ -\frac{1}{2} & \frac{17}{2} & \frac{57}{77} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & 3 & -1 & 8 \\ 0 & -1 & 4 & -2 \\ 0 & 0 & -\frac{77}{2} & -4 \\ 0 & 0 & 0 & \frac{2230}{77} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & 7 & -10 \\ 15 & 7 & -6 \\ -18 & -7 & 17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9)(2, 4, 7, 8, 3, 6, 5), \text{ord} = 14, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 6 & 7 & 5 & 3 & 8 & 2 & 4 & 1 \end{pmatrix} = (1, 9)(2, 6, 8, 4, 5, 3, 7)$$

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

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

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

7. брак

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

9. При $\lambda = 1$

10. Определитель: $38 - 10\lambda$, при $\lambda = [19/5]$ ранг равен 3, иначе 4