

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 6 & 1 & 0 & 0 \\ 5 & 71 & 1 & 0 \\ 3 & 41 & 18 & 0 \\ 5 & 41 & -189 & 1 \end{bmatrix}, U = \begin{bmatrix} -5 & -6 & 6 & -2 \\ 0 & \frac{41}{5} & \frac{9}{5} & \frac{32}{5} \\ 0 & 0 & -\frac{382}{41} & -\frac{438}{41} \\ 0 & 0 & 0 & -\frac{362}{191} \end{bmatrix}$$

3.

$$\begin{pmatrix} 3 & 16 & 14 \\ -9 & -7 & -8 \\ -10 & 4 & -7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4)(2, 7, 3, 5, 6, 9, 8), \text{ord} = 14, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 3 & 6 & 1 & 9 & 8 & 5 & 7 & 2 \end{pmatrix} = (1, 4)(2, 3, 6, 8, 7, 5, 9)$$

6. Id; (2, 3, 7, 6); (2, 6, 7, 3); (2, 7) (3, 6);

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

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

7. брак

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

9. При $\lambda = -10$

10. Определитель: $65\lambda + 385$, при $\lambda = [-77/13]$ ранг равен 3, иначе 4