

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{7} & 1 & 0 & 0 \\ -\frac{1}{7} & -\frac{47}{13} & 1 & 0 \\ \frac{2}{7} & -\frac{32}{13} & \frac{46}{83} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 2 & -9 & 9 \\ 0 & \frac{13}{7} & \frac{50}{7} & -\frac{29}{7} \\ 0 & 0 & \frac{332}{13} & -\frac{282}{13} \\ 0 & 0 & 0 & -\frac{62}{83} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & 12 & -15 \\ -16 & 5 & -5 \\ -19 & -2 & 15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 8, 6, 3)(2, 7, 4, 9), \text{ord} = 20, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 7 & 8 & 9 & 3 & 5 & 4 & 1 & 2 \end{pmatrix} = (1, 6, 5, 3, 8)(2, 7, 4, 9)$$

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

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

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

7. брак

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

9. При $\lambda = -8$

10. Определитель: $42\lambda + 28$, при $\lambda = [-2/3]$ ранг равен 3, иначе 4