

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -5 & 1 & 0 & 0 \\ 1 & -\frac{11}{17} & 1 & 0 \\ -7 & \frac{27}{17} & -\frac{1}{64} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & -4 & 1 & 8 \\ 0 & -17 & 7 & 42 \\ 0 & 0 & \frac{128}{17} & \frac{156}{17} \\ 0 & 0 & 0 & -\frac{121}{16} \end{bmatrix}$$

3.

$$\begin{pmatrix} 17 & -3 & 19 \\ -13 & 18 & 5 \\ -12 & 19 & 17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 9, 3, 5, 7, 4)(2, 8), \text{ord} = 14, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 8 & 7 & 6 & 4 & 3 & 1 & 2 & 5 \end{pmatrix} = (1, 9, 5, 4, 6, 3, 7)(2, 8)$$

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

7. брак

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

9. При $\lambda = 8$

10. Определитель: $115\lambda + 175$, при $\lambda = [-35/23]$ ранг равен 3, иначе 4