

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ -\frac{3}{2} & \frac{3}{4} & 1 & 0 \\ \frac{1}{4} & -\frac{1}{4} & \frac{2}{19} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & 8 & -6 & 3 \\ 0 & 4 & 6 & \frac{13}{2} \\ 0 & 0 & -\frac{19}{2} & -\frac{35}{8} \\ 0 & 0 & 0 & \frac{811}{152} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & 11 & -9 \\ -19 & 13 & -10 \\ -13 & -16 & -9 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

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

9. При $\lambda = 5$

10. Определитель: $48\lambda + 84$, при $\lambda = [-7/4]$ ранг равен 3, иначе 4