

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{4}{7} & 1 & 0 & 0 \\ -\frac{1}{7} & \frac{31}{26} & 1 & 0 \\ 0 & \frac{21}{52} & -\frac{5}{426} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 1 & 9 & 4 \\ 0 & -\frac{52}{7} & \frac{99}{7} & \frac{16}{7} \\ 0 & 0 & -\frac{639}{26} & \frac{76}{13} \\ 0 & 0 & 0 & \frac{457}{213} \end{bmatrix}$$

3.

$$\begin{pmatrix} 10 & -11 & -18 \\ -20 & 4 & 19 \\ 7 & 12 & 5 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

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

9. При $\lambda = -4$

10. Определитель: $8\lambda - 84$, при $\lambda = [21/2]$ ранг равен 3, иначе 4