

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 5 & 1 & 0 & 0 \\ -\frac{9}{2} & -\frac{17}{14} & 1 & 0 \\ -\frac{1}{2} & -\frac{9}{28} & \frac{123}{460} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & -6 & 7 & 3 \\ 0 & 28 & -37 & -23 \\ 0 & 0 & -\frac{115}{7} & -\frac{115}{7} \\ 0 & 0 & 0 & -\frac{7}{2} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & -2 & -9 \\ -20 & 5 & -7 \\ -1 & -2 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 6, 7, 5, 8, 2)(3, 9), \text{ord} = 14, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 6 & 9 & 5 & 1 & 8 & 2 & 4 & 3 \end{pmatrix} = (1, 7, 2, 6, 8, 4, 5)(3, 9)$$

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

7. брак

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

9. При $\lambda = -7$

10. Определитель: $-74\lambda - 36$, при $\lambda = [-18/37]$ ранг равен 3, иначе 4