

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{3}{2} & 1 & 0 & 0 \\ \frac{1}{4} & \frac{7}{13} & 1 & 0 \\ \frac{7}{4} & 1 & -\frac{13}{85} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & 8 & -6 & 6 \\ 0 & -13 & 6 & -4 \\ 0 & 0 & \frac{85}{26} & \frac{173}{26} \\ 0 & 0 & 0 & \frac{129}{85} \end{bmatrix}$$

3.

$$\begin{pmatrix} 13 & -5 & 8 \\ -9 & 15 & 13 \\ -5 & 10 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3)(2, 9)(4, 8, 6, 7, 5), \text{ord} = 10, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 9 & 1 & 8 & 4 & 7 & 5 & 6 & 2 \end{pmatrix} = (1, 3)(2, 9)(4, 8, 6, 7, 5)$$

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

7. брак

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

9. При $\lambda = 3$

10. Определитель: $-38\lambda - 134$, при $\lambda = [-67/19]$ ранг равен 3, иначе 4