

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{2} & 1 & 0 & 0 \\ 3 & -\frac{34}{65} & 1 & 0 \\ -\frac{3}{2} & \frac{3}{13} & -\frac{10}{443} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & -9 & -8 & -2 \\ 0 & -\frac{65}{2} & -16 & 4 \\ 0 & 0 & \frac{886}{65} & \frac{981}{65} \\ 0 & 0 & 0 & -\frac{5131}{443} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & -20 & -7 \\ 13 & 11 & 11 \\ -19 & -3 & 16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 5)(2, 3, 6, 7)(8, 9), \text{ord} = 12, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 3 & 6 & 1 & 4 & 7 & 2 & 9 & 8 \end{pmatrix} = (1, 5, 4)(2, 3, 6, 7)(8, 9)$$

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

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

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

$$7. \frac{36(-36)^n}{29} - \frac{7(-7)^n}{29}$$

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

9. При $\lambda = 0$

10. Определитель: $179 - 15\lambda$, при $\lambda = [179/15]$ ранг равен 3, иначе 4