

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ \frac{4}{5} & \frac{12}{5} & 1 & 0 \\ \frac{4}{5} & -\frac{3}{5} & \frac{47}{7} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & 2 & 4 & -3 \\ 0 & -4 & 3 & 12 \\ 0 & 0 & -\frac{7}{5} & -\frac{147}{5} \\ 0 & 0 & 0 & 198 \end{bmatrix}$$

3.

$$\begin{pmatrix} -5 & -19 & -18 \\ -8 & 9 & -6 \\ -19 & 11 & -12 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 7, 4)(3, 8)(5, 9, 6), \text{ord} = 12, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 7 & 8 & 1 & 9 & 5 & 4 & 3 & 6 \end{pmatrix} = (1, 2, 7, 4)(3, 8)(5, 9, 6)$$

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

$$7. -\frac{(-1)^n}{29} + \frac{30(-30)^n}{29}$$

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

9. При $\lambda = 4$

10. Определитель: $108\lambda + 855$, при $\lambda = [-95/12]$ ранг равен 3, иначе 4