

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{4} & 1 & 0 & 0 \\ \frac{1}{4} & 2 & 1 & 0 \\ \frac{1}{4} & -2 & -1 & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -4 & -2 & 0 \\ 0 & -1 & \frac{1}{2} & -2 \\ 0 & 0 & -\frac{13}{2} & 4 \\ 0 & 0 & 0 & 6 \end{bmatrix}$$

3.

$$\begin{pmatrix} 11 & 2 & 19 \\ 17 & -13 & 17 \\ -16 & -7 & -12 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{(-7)^n}{11} + \frac{10 \cdot 70^n}{11}$$

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

9. При $\lambda = -4$

10. Определитель: $36\lambda - 180$, при $\lambda = [5]$ ранг равен 3, иначе 4