

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -3 & \frac{5}{17} & 1 & 0 \\ -1 & -\frac{5}{17} & \frac{215}{6} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 3 & -1 & -2 \\ 0 & 17 & -9 & -13 \\ 0 & 0 & -\frac{6}{17} & -\frac{71}{17} \\ 0 & 0 & 0 & \frac{833}{6} \end{bmatrix}$$

3.

$$\begin{pmatrix} -11 & -14 & -16 \\ 1 & -10 & -13 \\ 0 & 2 & 14 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 8, 2, 3)(5, 9, 7, 6), \text{ord} = 20, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 3 & 1 & 8 & 9 & 5 & 6 & 2 & 7 \end{pmatrix} = (1, 4, 8, 2, 3)(5, 9, 7, 6)$$

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

$$7. \frac{3(-21)^n}{2} - \frac{(-7)^n}{2}$$

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

9. При $\lambda = -8$

10. Определитель: $-93\lambda - 284$, при $\lambda = [-284/93]$ ранг равен 3, иначе 4