

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{2}{3} & 1 & 0 & 0 \\ -\frac{4}{3} & \frac{1}{16} & 1 & 0 \\ 2 & \frac{33}{16} & -\frac{37}{43} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & -5 & -2 & -4 \\ 0 & \frac{16}{3} & -\frac{14}{3} & \frac{14}{3} \\ 0 & 0 & -\frac{43}{8} & -\frac{117}{8} \\ 0 & 0 & 0 & -\frac{611}{43} \end{bmatrix}$$

3.

$$\begin{pmatrix} -15 & -5 & -8 \\ -9 & 12 & 11 \\ -8 & 7 & 2 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{14(-42)^n}{11} - \frac{3(-9)^n}{11}$$

$$8. 0 + -1 * x + -2 * x^2 + -1 * x^3 + -3 * x^4$$

9. При $\lambda = -6$

10. Определитель: $91\lambda - 399$, при $\lambda = [57/13]$ ранг равен 3, иначе 4