

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{8}{3} & 1 & 0 & 0 \\ -\frac{7}{3} & -\frac{79}{28} & 1 & 0 \\ -\frac{1}{3} & -\frac{11}{28} & \frac{31}{55} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & -10 & 9 & 3 \\ 0 & \frac{56}{3} & -24 & -2 \\ 0 & 0 & -\frac{55}{7} & -\frac{23}{7} \\ 0 & 0 & 0 & -\frac{291}{220} \end{bmatrix}$$

3.

$$\begin{pmatrix} 4 & -15 & 15 \\ 14 & -5 & 8 \\ 14 & -16 & -20 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8)(2, 6, 9, 3, 5, 4, 7), \text{ord} = 14, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 9 & 4 & 2 & 7 & 3 & 6 & 1 & 5 \end{pmatrix} = (1, 8)(2, 9, 5, 7, 6, 3, 4)$$

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

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

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

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

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

$$7. \frac{5(-10)^n}{13} + \frac{8 \cdot 16^n}{13}$$

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

9. При $\lambda = 2$

10. Определитель: $4\lambda + 10$, при $\lambda = [-5/2]$ ранг равен 3, иначе 4