

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{4}{7} & 1 & 0 & 0 \\ \frac{9}{7} & \frac{1}{14} & 1 & 0 \\ \frac{1}{7} & -\frac{3}{7} & \frac{481}{705} & 1 \end{bmatrix}, U = \begin{bmatrix} -7 & -7 & -6 & 7 \\ 0 & -14 & \frac{32}{7} & 10 \\ 0 & 0 & \frac{705}{49} & -\frac{131}{7} \\ 0 & 0 & 0 & \frac{5678}{705} \end{bmatrix}$$

3.

$$\begin{pmatrix} -20 & 4 & 9 \\ 2 & 2 & 18 \\ -14 & -2 & 13 \end{pmatrix}$$

4.

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

5.

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

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

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

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

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

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

$$7. \frac{2(-18)^n}{7} + \frac{5 \cdot 45^n}{7}$$

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

9. При $\lambda = 6$

10. Определитель: $12\lambda - 150$, при $\lambda = [25/2]$ ранг равен 3, иначе 4