

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{1}{5} & 1 & 0 & 0 \\ \frac{1}{2} & \frac{23}{14} & 1 & 0 \\ \frac{1}{10} & \frac{11}{14} & -\frac{787}{261} & 1 \end{bmatrix}, U = \begin{bmatrix} -10 & 5 & -2 & 4 \\ 0 & -7 & -\frac{13}{5} & -\frac{29}{5} \\ 0 & 0 & -\frac{261}{70} & \frac{107}{70} \\ 0 & 0 & 0 & \frac{461}{261} \end{bmatrix}$$

3.

$$\begin{pmatrix} -10 & 3 & 17 \\ 18 & -16 & -16 \\ -12 & 10 & 13 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 4)(2, 3, 7, 5, 9, 8), \text{ord} = 6, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 3 & 7 & 1 & 9 & 4 & 5 & 2 & 8 \end{pmatrix} = (1, 6, 4)(2, 3, 7, 5, 9, 8)$$

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

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

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

$$7. \frac{4(-32)^n}{13} + \frac{9 \cdot 72^n}{13}$$

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

9. При $\lambda = -2$

10. Определитель: $-12\lambda - 88$, при $\lambda = [-22/3]$ ранг равен 3, иначе 4