

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{7}{5} & 1 & 0 & 0 \\ \frac{5}{4} & -\frac{19}{12} & 1 & 0 \\ \frac{1}{5} & \frac{29}{12} & -1 & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & 1 & -5 & -1 \\ 0 & \frac{12}{5} & -6 & -\frac{52}{5} \\ 0 & 0 & -\frac{23}{2} & -\frac{56}{3} \\ 0 & 0 & 0 & -\frac{1}{3} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & 15 & 19 \\ 17 & 6 & -14 \\ -9 & -20 & -2 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 6, 9, 2)(4, 8, 5, 7), \text{ord} = 20, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 9 & 1 & 8 & 7 & 3 & 4 & 5 & 6 \end{pmatrix} = (1, 2, 9, 6, 3)(4, 8, 5, 7)$$

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

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

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

$$7. \frac{3(-36)^n}{4} + \frac{12^n}{4}$$

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

9. При $\lambda = 3$

10. Определитель: 312, при $\lambda = \square$ ранг равен 3, иначе 4