

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ -\frac{1}{3} & 0 & 1 & 0 \\ -\frac{1}{3} & 0 & \frac{2}{11} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & -6 & -7 & -3 \\ 0 & -5 & -7 & -13 \\ 0 & 0 & -\frac{22}{3} & -6 \\ 0 & 0 & 0 & \frac{78}{11} \end{bmatrix}$$

3.

$$\begin{pmatrix} 6 & -11 & -17 \\ 8 & 12 & -15 \\ 16 & -9 & -15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 7)(2, 4, 8, 9)(3, 5), \text{ord} = 12, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 4 & 5 & 8 & 3 & 1 & 6 & 9 & 2 \end{pmatrix} = (1, 7, 6)(2, 4, 8, 9)(3, 5)$$

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

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

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

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

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

9. При $\lambda = -5$

10. Определитель: -20λ , при $\lambda = [0]$ ранг равен 3, иначе 4