

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{8}{3} & 1 & 0 & 0 \\ -\frac{7}{3} & -\frac{19}{11} & 1 & 0 \\ \frac{2}{3} & \frac{38}{11} & -\frac{26}{9} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & 4 & 6 & 6 \\ 0 & -\frac{11}{3} & -11 & -25 \\ 0 & 0 & -9 & -\frac{420}{11} \\ 0 & 0 & 0 & -\frac{889}{33} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 10 & 6 \\ 3 & 0 & -6 \\ -3 & -14 & -3 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6)(2, 8, 7, 3, 5, 4, 9), \text{ord} = 14, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 3 & 9 & 8 & 2 & 1 & 4 & 5 & 7 \end{pmatrix} = (1, 6)(2, 3, 9, 7, 4, 8, 5)$$

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

$$7. \frac{5(-20)^n}{19} + \frac{14 \cdot 56^n}{19}$$

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

9. При $\lambda = -9$

10. Определитель: $144\lambda - 720$, при $\lambda = [5]$ ранг равен 3, иначе 4