

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ -\frac{3}{4} & 1 & 1 & 0 \\ \frac{5}{8} & 2 & \frac{31}{38} & 1 \end{bmatrix}, U = \begin{bmatrix} 8 & 0 & 3 & -4 \\ 0 & 3 & 3 & -7 \\ 0 & 0 & -\frac{19}{4} & -6 \\ 0 & 0 & 0 & \frac{433}{38} \end{bmatrix}$$

3.

$$\begin{pmatrix} 17 & -13 & 18 \\ -2 & -1 & -8 \\ 0 & -20 & -19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 5, 4)(3, 9, 8, 6, 7), \text{ord} = 20, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 1 & 6 & 5 & 2 & 9 & 8 & 3 & 7 \end{pmatrix} = (1, 4, 5, 2)(3, 6, 9, 7, 8)$$

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

$$7. \frac{2(-4)^n}{11} + \frac{9 \cdot 18^n}{11}$$

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

9. При $\lambda = 8$

10. Определитель: $-90\lambda - 237$, при $\lambda = [-79/30]$ ранг равен 3, иначе 4