

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -9 & 1 & 0 & 0 \\ -5 & \frac{3}{17} & 1 & 0 \\ 7 & -\frac{10}{17} & -\frac{424}{491} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -1 & -8 & 5 \\ 0 & -17 & -63 & 36 \\ 0 & 0 & -\frac{491}{17} & \frac{300}{17} \\ 0 & 0 & 0 & -\frac{287}{491} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 19 & -2 \\ 14 & -12 & 0 \\ -5 & 9 & -19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7, 6, 3, 5, 2, 8)(4, 9), \text{ord} = 14, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 3 & 7 & 9 & 6 & 1 & 8 & 5 & 4 \end{pmatrix} = (1, 2, 3, 7, 8, 5, 6)(4, 9)$$

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

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

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

$$7. \frac{5(-5)^n}{21} + \frac{16 \cdot 16^n}{21}$$

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

9. При $\lambda = 1$

10. Определитель: $-96\lambda - 50$, при $\lambda = [-25/48]$ ранг равен 3, иначе 4