

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{4}{3} & 1 & 0 & 0 \\ \frac{1}{3} & -\frac{4}{7} & 1 & 0 \\ \frac{1}{6} & \frac{4}{7} & -\frac{43}{15} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & 8 & -6 & -2 \\ 0 & \frac{14}{3} & -5 & -\frac{35}{3} \\ 0 & 0 & \frac{15}{7} & -2 \\ 0 & 0 & 0 & \frac{19}{15} \end{bmatrix}$$

3.

$$\begin{pmatrix} 13 & -13 & -15 \\ 6 & -15 & -1 \\ -17 & 3 & -18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 9)(2, 8, 3, 5)(4, 7), \text{ord} = 12, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 5 & 8 & 7 & 3 & 9 & 4 & 2 & 1 \end{pmatrix} = (1, 6, 9)(2, 5, 3, 8)(4, 7)$$

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

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

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

7. $-2 \cdot 4^n + 3 \cdot 6^n$

8. $-2 + 1 * x + 0 * x^2 + -3 * x^3 + 4 * x^4$

9. При $\lambda = 8$

10. Определитель: $213 - 96\lambda$, при $\lambda = [71/32]$ ранг равен 3, иначе 4