

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ 0 & -\frac{3}{2} & 1 & 0 \\ -\frac{1}{2} & \frac{5}{2} & -\frac{3}{16} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & -8 & 6 & -3 \\ 0 & 2 & -4 & \frac{7}{2} \\ 0 & 0 & -16 & \frac{41}{4} \\ 0 & 0 & 0 & -\frac{597}{64} \end{bmatrix}$$

3.

$$\begin{pmatrix} 4 & -8 & -8 \\ 14 & -11 & -18 \\ 7 & 4 & -7 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 2, 3, 9)(4, 7, 8, 6), \text{ord} = 20, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 5 & 2 & 7 & 1 & 4 & 8 & 6 & 3 \end{pmatrix} = (1, 9, 3, 2, 5)(4, 7, 8, 6)$$

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

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

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

7. $-20(-60)^n + 21(-63)^n$

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

9. При $\lambda = -8$

10. Определитель: $115\lambda - 26$, при $\lambda = [26/115]$ ранг равен 3, иначе 4