

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{3} & 1 & 0 & 0 \\ 0 & \frac{6}{25} & 1 & 0 \\ 0 & \frac{6}{25} & \frac{111}{86} & 1 \end{bmatrix}, U = \begin{bmatrix} -3 & 7 & 3 & -1 \\ 0 & -\frac{50}{3} & -6 & \frac{32}{3} \\ 0 & 0 & \frac{86}{25} & -\frac{239}{25} \\ 0 & 0 & 0 & \frac{841}{86} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & 12 & -7 \\ -13 & -13 & 1 \\ 16 & 0 & 16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 2, 9, 8)(3, 5)(6, 7), \text{ord} = 10, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 4 & 5 & 1 & 3 & 7 & 6 & 9 & 2 \end{pmatrix} = (1, 8, 9, 2, 4)(3, 5)(6, 7)$$

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

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

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

7.  $-2(-18)^n + 3(-27)^n$

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

9. При  $\lambda = -8$

10. Определитель:  $104 - 44\lambda$ , при  $\lambda = [26/11]$  ранг равен 3, иначе 4