

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 8 & 1 & 0 & 0 \\ -8 & -\frac{21}{23} & 1 & 0 \\ 4 & \frac{28}{69} & -\frac{337}{120} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & -8 & -8 & 5 \\ 0 & 69 & 60 & -48 \\ 0 & 0 & -\frac{120}{23} & -\frac{295}{23} \\ 0 & 0 & 0 & -\frac{853}{24} \end{bmatrix}$$

3.

$$\begin{pmatrix} 9 & -13 & -3 \\ 11 & -17 & -9 \\ -17 & 11 & 19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 8, 9, 6, 2, 3)(4, 7), \text{ord} = 14, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 8 & 9 & 7 & 2 & 5 & 4 & 3 & 1 \end{pmatrix} = (1, 6, 5, 2, 8, 3, 9)(4, 7)$$

6. Id; (2, 3, 6, 5); (2, 5, 6, 3); (2, 6) (3, 5);

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

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

7. $-32^n + 2 \cdot 64^n$

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

9. При $\lambda = -6$

10. Определитель: $64\lambda - 192$, при $\lambda = [3]$ ранг равен 3, иначе 4