

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{8}{3} & 1 & 0 & 0 \\ 0 & \frac{9}{76} & 1 & 0 \\ \frac{5}{3} & \frac{4}{19} & -\frac{182}{109} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 8 & 7 & -5 \\ 0 & -\frac{76}{3} & -\frac{44}{3} & \frac{67}{3} \\ 0 & 0 & \frac{109}{19} & -\frac{581}{76} \\ 0 & 0 & 0 & -\frac{1119}{218} \end{bmatrix}$$

3.

$$\begin{pmatrix} -10 & -4 & -10 \\ 10 & 5 & -19 \\ -9 & 4 & 14 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 9)(2, 8, 4, 6, 3, 7), \text{ord} = 6, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 8 & 7 & 6 & 9 & 3 & 2 & 4 & 1 \end{pmatrix} = (1, 5, 9)(2, 8, 4, 6, 3, 7)$$

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

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

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

$$7. -\frac{5(-25)^n}{7} + \frac{12(-60)^n}{7}$$

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

9. При  $\lambda = 6$

10. Определитель:  $383 - 30\lambda$ , при  $\lambda = [383/30]$  ранг равен 3, иначе 4