

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{4} & 1 & 0 & 0 \\ 0 & -\frac{32}{15} & 1 & 0 \\ -\frac{5}{4} & \frac{13}{15} & -\frac{17}{18} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -9 & 1 & -9 \\ 0 & -\frac{15}{4} & \frac{27}{4} & -\frac{51}{4} \\ 0 & 0 & \frac{72}{5} & -\frac{181}{5} \\ 0 & 0 & 0 & -\frac{529}{18} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 15 & -5 \\ -6 & 1 & 18 \\ 5 & -13 & 19 \end{pmatrix}$$

4.

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

5.

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

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

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

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

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

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

$$7. \frac{3(-3)^n}{23} + \frac{20 \cdot 20^n}{23}$$

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

9. При $\lambda = -2$

10. Определитель: $106\lambda - 152$, при $\lambda = [76/53]$ ранг равен 3, иначе 4