

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{7}{5} & 1 & 0 & 0 \\ 1 & -\frac{10}{17} & 1 & 0 \\ \frac{8}{5} & -\frac{18}{17} & -\frac{3}{38} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & -7 & -1 & 5 \\ 0 & -\frac{34}{5} & \frac{13}{5} & 14 \\ 0 & 0 & -\frac{76}{17} & -\frac{13}{17} \\ 0 & 0 & 0 & -\frac{47}{38} \end{bmatrix}$$

3.

$$\begin{pmatrix} -18 & 18 & -9 \\ 19 & -1 & -13 \\ 16 & 8 & -5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 2, 9, 7)(4, 5, 8, 6), \text{ord} = 20, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 7 & 9 & 6 & 4 & 8 & 3 & 5 & 1 \end{pmatrix} = (1, 2, 7, 3, 9)(4, 6, 8, 5)$$

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

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

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

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

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

$$7. \frac{3(-45)^n}{4} + \frac{15^n}{4}$$

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

9. При  $\lambda = -9$

10. Определитель:  $26\lambda - 72$ , при  $\lambda = [36/13]$  ранг равен 3, иначе 4