

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 2 & 1 & 0 & 0 \\ 2 & \frac{13}{10} & 1 & 0 \\ \frac{4}{3} & \frac{7}{15} & \frac{29}{9} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 8 & 0 & -7 \\ 0 & -10 & 4 & 16 \\ 0 & 0 & -\frac{6}{5} & -\frac{14}{5} \\ 0 & 0 & 0 & \frac{26}{9} \end{bmatrix}$$

3.

$$\begin{pmatrix} -17 & 0 & 18 \\ 17 & -7 & -7 \\ 10 & -8 & 16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 2, 5, 9, 3, 8)(4, 6, 7), \text{ord} = 6, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 1 & 9 & 7 & 2 & 4 & 6 & 3 & 5 \end{pmatrix} = (1, 8, 3, 9, 5, 2)(4, 7, 6)$$

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);

$$7. \frac{3(-27)^n}{5} + \frac{2 \cdot 18^n}{5}$$

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

9. При $\lambda = 1$

10. Определитель: $47\lambda - 594$, при $\lambda = [594/47]$ ранг равен 3, иначе 4