

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 4 & \frac{19}{7} & 1 & 0 \\ -6 & -\frac{24}{7} & -\frac{103}{76} & 1 \end{bmatrix}, U = \begin{bmatrix} -1 & 9 & -3 & -1 \\ 0 & -14 & -5 & -7 \\ 0 & 0 & \frac{228}{7} & 19 \\ 0 & 0 & 0 & -\frac{17}{4} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & -5 & -4 \\ 3 & -15 & 12 \\ 12 & 18 & -14 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 9, 5, 6)(2, 7, 4, 8), \text{ord} = 20, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 7 & 1 & 8 & 9 & 5 & 4 & 2 & 3 \end{pmatrix} = (1, 6, 5, 9, 3)(2, 7, 4, 8)$$

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

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

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

$$7. \frac{(-10)^n}{4} + \frac{3 \cdot 30^n}{4}$$

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

9. При  $\lambda = 6$

10. Определитель:  $125\lambda + 20$ , при  $\lambda = [-4/25]$  ранг равен 3, иначе 4