

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{2} & 1 & 0 & 0 \\ -4 & \frac{4}{5} & 1 & 0 \\ -\frac{7}{2} & 2 & -\frac{55}{91} & 1 \end{bmatrix}, U = \begin{bmatrix} -2 & 4 & -10 & 6 \\ 0 & 10 & -21 & 3 \\ 0 & 0 & -\frac{91}{5} & \frac{118}{5} \\ 0 & 0 & 0 & \frac{2572}{91} \end{bmatrix}$$

3.

$$\begin{pmatrix} -6 & 13 & 11 \\ -4 & -10 & -20 \\ -17 & 10 & -17 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 2, 4, 5, 9, 3)(6, 7), \text{ord} = 14, \sigma^{-773} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 3 & 4 & 1 & 8 & 7 & 6 & 9 & 2 \end{pmatrix} = (1, 5, 8, 9, 2, 3, 4)(6, 7)$$

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

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

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

$$7. -\frac{4(-20)^n}{5} + \frac{9(-45)^n}{5}$$

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

9. При $\lambda = -4$

10. Определитель: $532 - 98\lambda$, при $\lambda = [38/7]$ ранг равен 3, иначе 4