

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ \frac{3}{2} & -\frac{7}{10} & 1 & 0 \\ -\frac{3}{4} & -\frac{29}{20} & \frac{35}{46} & 1 \end{bmatrix}, U = \begin{bmatrix} -4 & -3 & -5 & 9 \\ 0 & 5 & 10 & -1 \\ 0 & 0 & \frac{23}{2} & -\frac{66}{5} \\ 0 & 0 & 0 & \frac{5139}{230} \end{bmatrix}$$

3.

$$\begin{pmatrix} 15 & 17 & 17 \\ 14 & -5 & 7 \\ -15 & -4 & 8 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{2(-8)^n}{5} + \frac{3 \cdot 12^n}{5}$$

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

9. При $\lambda = 7$

10. Определитель: $264 - 48\lambda$, при $\lambda = [11/2]$ ранг равен 3, иначе 4