

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 5 & 1 & 0 & 0 \\ 5 & \frac{3}{17} & 1 & 0 \\ 3 & \frac{4}{17} & \frac{9}{28} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 2 & -1 & 9 \\ 0 & -17 & 14 & -55 \\ 0 & 0 & \frac{196}{17} & -\frac{719}{17} \\ 0 & 0 & 0 & \frac{239}{28} \end{bmatrix}$$

3.

$$\begin{pmatrix} -7 & 2 & -13 \\ -8 & -20 & 2 \\ -11 & 4 & -3 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{25(-25)^n}{73} + \frac{48 \cdot 48^n}{73}$$

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

9. При $\lambda = 1$

10. Определитель: $-4\lambda - 539$, при $\lambda = [-539/4]$ ранг равен 3, иначе 4