

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{8}{9} & 1 & 0 & 0 \\ \frac{1}{9} & -\frac{1}{4} & 1 & 0 \\ -1 & -\frac{1}{2} & -\frac{18}{49} & 1 \end{bmatrix}, U = \begin{bmatrix} -9 & 0 & 0 & 0 \\ 0 & -4 & -9 & 2 \\ 0 & 0 & -\frac{49}{4} & \frac{13}{2} \\ 0 & 0 & 0 & \frac{362}{49} \end{bmatrix}$$

3.

$$\begin{pmatrix} -5 & 19 & -14 \\ 2 & -17 & 8 \\ -15 & -12 & -2 \end{pmatrix}$$

4.

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

5.

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

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

$$7. \frac{5(-40)^n}{13} + \frac{8 \cdot 64^n}{13}$$

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

9. При $\lambda = 3$

10. Определитель: $57\lambda + 114$, при $\lambda = [-2]$ ранг равен 3, иначе 4