

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ \frac{1}{7} & \frac{2}{7} & -\frac{73}{49} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 5 & -7 & -1 \\ 0 & 1 & 5 & 6 \\ 0 & 0 & 7 & -1 \\ 0 & 0 & 0 & -\frac{640}{49} \end{bmatrix}$$

3.

$$\begin{pmatrix} 5 & -14 & -20 \\ 19 & -16 & 12 \\ -5 & 3 & -4 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6)(2, 4, 8)(3, 5, 9, 7), \text{ord} = 12, \sigma^{-751} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 8 & 5 & 2 & 9 & 1 & 3 & 4 & 7 \end{pmatrix} = (1, 6)(2, 8, 4)(3, 5, 9, 7)$$

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

$$7. -\frac{18(-18)^n}{17} + \frac{35(-35)^n}{17}$$

$$8. -3 + 0 * x + 1 * x^2 + -1 * x^3 + 3 * x^4$$

9. При $\lambda = 5$

10. Определитель: $2\lambda - 2$, при $\lambda = [1]$ ранг равен 3, иначе 4