

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 1 & 0 & 0 \\ -1 & -\frac{2}{5} & 1 & 0 \\ \frac{3}{7} & \frac{54}{35} & -\frac{151}{371} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 4 & 2 & -10 \\ 0 & -5 & -1 & 10 \\ 0 & 0 & \frac{53}{5} & -2 \\ 0 & 0 & 0 & -\frac{3694}{371} \end{bmatrix}$$

3.

$$\begin{pmatrix} -14 & 7 & -12 \\ -17 & 6 & -17 \\ 2 & -3 & 2 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 8, 5)(2, 9, 4, 6, 7), \text{ord} = 20, \sigma^{-743} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 4 & 8 & 7 & 1 & 2 & 9 & 5 & 6 \end{pmatrix} = (1, 3, 8, 5)(2, 4, 7, 9, 6)$$

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

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

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

$$7. \frac{12(-24)^n}{47} + \frac{35 \cdot 70^n}{47}$$

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

9. При $\lambda = 7$

10. Определитель: $-135\lambda - 75$, при $\lambda = [-5/9]$ ранг равен 3, иначе 4