

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{7}{5} & 1 & 0 & 0 \\ -\frac{9}{5} & \frac{23}{11} & 1 & 0 \\ -\frac{8}{5} & -4 & -\frac{605}{581} & 1 \end{bmatrix}, U = \begin{bmatrix} -5 & 3 & 9 & 1 \\ 0 & -\frac{11}{5} & -\frac{78}{5} & \frac{33}{5} \\ 0 & 0 & \frac{581}{11} & -7 \\ 0 & 0 & 0 & \frac{1885}{83} \end{bmatrix}$$

3.

$$\begin{pmatrix} 17 & 5 & -11 \\ -9 & -17 & -12 \\ -6 & 1 & -18 \end{pmatrix}$$

4.

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

5.

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

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

$$7. -\frac{27 \cdot 27^n}{13} + \frac{40 \cdot 40^n}{13}$$

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

9. При $\lambda = 7$

10. Определитель: $96\lambda - 116$, при $\lambda = [29/24]$ ранг равен 3, иначе 4