

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 1 & 0 & 0 \\ -3 & \frac{7}{17} & 1 & 0 \\ \frac{7}{3} & -\frac{43}{51} & \frac{977}{378} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & 4 & -8 & -7 \\ 0 & 17 & -33 & -25 \\ 0 & 0 & -\frac{126}{17} & -\frac{97}{17} \\ 0 & 0 & 0 & \frac{1513}{378} \end{bmatrix}$$

3.

$$\begin{pmatrix} -11 & -8 & -9 \\ -4 & -10 & -15 \\ -17 & 3 & 10 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{9(-54)^n}{8} - \frac{(-6)^n}{8}$$

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

9. При $\lambda = 3$

10. Определитель: $24\lambda + 444$, при $\lambda = [-37/2]$ ранг равен 3, иначе 4