

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 4 & \frac{31}{10} & 1 & 0 \\ \frac{1}{5} & -\frac{7}{20} & -\frac{9}{14} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & 8 & 5 & 6 \\ 0 & -4 & 1 & 9 \\ 0 & 0 & -\frac{21}{10} & -\frac{337}{10} \\ 0 & 0 & 0 & -\frac{173}{7} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & 6 & 1 \\ -19 & 11 & -16 \\ -17 & 6 & -10 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 7)(2, 6, 5, 3)(4, 9, 8), ord = 12, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 6 & 2 & 8 & 3 & 5 & 1 & 9 & 4 \end{pmatrix} = (1, 7)(2, 6, 5, 3)(4, 8, 9)$$

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

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

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

$$7. \frac{7(-21)^n}{6} - \frac{(-3)^n}{6}$$

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

9. При $\lambda = 2$

10. Определитель: $105\lambda + 385$, при $\lambda = [-11/3]$ ранг равен 3, иначе 4