

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 3 & 1 & 0 & 0 \\ 9 & \frac{71}{23} & 1 & 0 \\ 5 & \frac{34}{23} & \frac{181}{541} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & -7 & 8 & -1 \\ 0 & 23 & -29 & -5 \\ 0 & 0 & \frac{541}{23} & \frac{769}{23} \\ 0 & 0 & 0 & -\frac{430}{541} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & 5 & -10 \\ -10 & -4 & -14 \\ -13 & -10 & -20 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5)(2, 4)(3, 7)(6, 8, 9), \text{ord} = 6, \sigma^{-821} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 4 & 7 & 2 & 1 & 8 & 3 & 9 & 6 \end{pmatrix} = (1, 5)(2, 4)(3, 7)(6, 8, 9)$$

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

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

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

7. брак

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

9. При $\lambda = 3$

10. Определитель: $\lambda + 387$, при $\lambda = [-387]$ ранг равен 3, иначе 4