

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{2} & 1 & 0 & 0 \\ -1 & -\frac{26}{3} & 1 & 0 \\ \frac{5}{8} & -\frac{5}{4} & \frac{39}{20} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & 5 & -5 & 7 \\ 0 & -\frac{3}{2} & -\frac{1}{2} & \frac{5}{2} \\ 0 & 0 & -\frac{10}{3} & \frac{95}{3} \\ 0 & 0 & 0 & -68 \end{bmatrix}$$

3.

$$\begin{pmatrix} -17 & -19 & 7 \\ 2 & 14 & -2 \\ 18 & -18 & -12 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. брак

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

9. При  $\lambda = -1$

10. Определитель:  $100\lambda + 636$ , при  $\lambda = [-159/25]$  ранг равен 3, иначе 4