

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{8} & 1 & 0 & 0 \\ -\frac{3}{4} & -2 & 1 & 0 \\ \frac{7}{8} & -\frac{5}{3} & \frac{22}{9} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & 4 & 8 & 6 \\ 0 & \frac{3}{2} & -2 & -\frac{13}{4} \\ 0 & 0 & -3 & 6 \\ 0 & 0 & 0 & -\frac{94}{3} \end{bmatrix}$$

3.

$$\begin{pmatrix} 3 & 3 & -10 \\ 5 & 3 & 6 \\ 11 & 2 & 6 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 7, 8, 6, 5, 4)(2, 3), \text{ord} = 14, \sigma^{-727} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 3 & 2 & 1 & 4 & 5 & 8 & 6 & 7 \end{pmatrix} = (1, 9, 7, 8, 6, 5, 4)(2, 3)$$

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

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

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

7. брак

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

9. При $\lambda = 8$

10. Определитель: $-148\lambda - 608$, при $\lambda = [-152/37]$ ранг равен 3, иначе 4