

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{2}{9} & 1 & 0 & 0 \\ -\frac{1}{9} & \frac{34}{13} & 1 & 0 \\ \frac{4}{9} & \frac{17}{13} & \frac{33}{79} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -4 & 9 & -3 \\ 0 & \frac{26}{9} & -12 & \frac{17}{3} \\ 0 & 0 & \frac{395}{13} & -\frac{106}{13} \\ 0 & 0 & 0 & -\frac{132}{79} \end{bmatrix}$$

3.

$$\begin{pmatrix} -19 & 4 & 4 \\ -7 & 15 & 16 \\ -10 & 2 & 2 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

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

9. При $\lambda = -4$

10. Определитель: $125\lambda - 256$, при $\lambda = [256/125]$ ранг равен 3, иначе 4