

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{4}{9} & 1 & 0 & 0 \\ -\frac{4}{9} & \frac{10}{17} & 1 & 0 \\ 0 & \frac{72}{85} & \frac{11}{25} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & 1 & -4 & -10 \\ 0 & -\frac{85}{9} & \frac{34}{9} & \frac{31}{9} \\ 0 & 0 & -5 & -\frac{42}{17} \\ 0 & 0 & 0 & \frac{1347}{425} \end{bmatrix}$$

3.

$$\begin{pmatrix} 7 & 9 & 5 \\ 6 & 16 & 5 \\ -5 & -2 & -10 \end{pmatrix}$$

4.

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

5.

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

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

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

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

7. брак

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

9. При  $\lambda = 2$

10. Определитель:  $28\lambda - 56$ , при  $\lambda = [2]$  ранг равен 3, иначе 4