

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{5} & 1 & 0 & 0 \\ -\frac{4}{5} & -\frac{2}{27} & 1 & 0 \\ \frac{2}{5} & -\frac{23}{54} & \frac{329}{130} & 1 \end{bmatrix}, U = \begin{bmatrix} 5 & -9 & -6 & -3 \\ 0 & -\frac{54}{5} & -\frac{41}{5} & -\frac{23}{5} \\ 0 & 0 & -\frac{65}{27} & -\frac{263}{27} \\ 0 & 0 & 0 & \frac{1618}{65} \end{bmatrix}$$

3.

$$\begin{pmatrix} 4 & -14 & -3 \\ 9 & 11 & 10 \\ 7 & 16 & 11 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5, 9, 4, 8, 3)(2, 7, 6), \text{ord} = 6, \sigma^{-823} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 3 & 6 & 8 & 9 & 1 & 7 & 2 & 4 & 5 \end{pmatrix} = (1, 3, 8, 4, 9, 5)(2, 6, 7)$$

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

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

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

7. брак

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

9. При  $\lambda = 9$

10. Определитель:  $46 - 2\lambda$ , при  $\lambda = [23]$  ранг равен 3, иначе 4