

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{5}{9} & 1 & 0 & 0 \\ 1 & -\frac{18}{23} & 1 & 0 \\ 1 & -\frac{33}{23} & -\frac{361}{192} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & 3 & -2 & 4 \\ 0 & \frac{23}{3} & -\frac{28}{9} & \frac{65}{9} \\ 0 & 0 & \frac{128}{23} & \frac{107}{23} \\ 0 & 0 & 0 & \frac{903}{64} \end{bmatrix}$$

3.

$$\begin{pmatrix} 12 & -14 & -20 \\ -2 & 2 & -9 \\ -16 & 18 & 19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 4, 7, 6, 5, 9)(2, 8, 3), \text{ord} = 6, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 8 & 2 & 7 & 9 & 5 & 6 & 3 & 1 \end{pmatrix} = (1, 4, 7, 6, 5, 9)(2, 8, 3)$$

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

7. брак

$$8. -1 - 2x - 2x^2 + 0x^3 + 2x^4$$

9. При $\lambda = -7$

10. Определитель: $14\lambda - 154$, при $\lambda = [11]$ ранг равен 3, иначе 4