

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{4}{3} & 1 & 0 & 0 \\ 1 & -\frac{6}{5} & 1 & 0 \\ \frac{8}{3} & -\frac{4}{5} & \frac{53}{27} & 1 \end{bmatrix}, U = \begin{bmatrix} 3 & -1 & -10 & 4 \\ 0 & \frac{20}{3} & -\frac{13}{3} & \frac{7}{3} \\ 0 & 0 & \frac{54}{5} & -\frac{16}{5} \\ 0 & 0 & 0 & -\frac{257}{27} \end{bmatrix}$$

3.

$$\begin{pmatrix} 0 & 18 & 15 \\ -18 & -4 & -8 \\ 17 & -2 & 12 \end{pmatrix}$$

4.

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

5.

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

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

7. брак

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

9. При $\lambda = 8$

10. Определитель: $-4\lambda - 116$, при $\lambda = [-29]$ ранг равен 3, иначе 4