

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{3} & 1 & 0 & 0 \\ 1 & \frac{11}{16} & 1 & 0 \\ \frac{2}{3} & \frac{9}{16} & \frac{5}{17} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -6 & -6 & 5 \\ 0 & 16 & 8 & -\frac{31}{3} \\ 0 & 0 & \frac{17}{2} & \frac{197}{48} \\ 0 & 0 & 0 & \frac{309}{136} \end{bmatrix}$$

3.

$$\begin{pmatrix} -20 & 10 & -15 \\ 10 & -15 & 15 \\ 1 & 12 & 1 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 2, 7, 6, 5)(3, 4, 9), \text{ord} = 6, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 7 & 4 & 9 & 1 & 5 & 6 & 2 & 3 \end{pmatrix} = (1, 8, 2, 7, 6, 5)(3, 4, 9)$$

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

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

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

7. брак

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

9. При $\lambda = -1$

10. Определитель: $-28\lambda - 500$, при $\lambda = [-125/7]$ ранг равен 3, иначе 4