

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{8}{5} & 1 & 0 & 0 \\ -1 & 0 & 1 & 0 \\ -\frac{3}{5} & -\frac{47}{107} & -\frac{148}{107} & 1 \end{bmatrix}, U = \begin{bmatrix} -5 & 9 & -4 & 0 \\ 0 & -\frac{107}{5} & \frac{22}{5} & -8 \\ 0 & 0 & -4 & -6 \\ 0 & 0 & 0 & -\frac{622}{107} \end{bmatrix}$$

3.

$$\begin{pmatrix} 19 & 19 & 17 \\ -12 & 5 & 12 \\ -6 & -6 & 3 \end{pmatrix}$$

4.

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

5.

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

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

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

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

$$7. \frac{4(-80)^n}{7} + \frac{3 \cdot 60^n}{7}$$

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

9. При $\lambda = -1$

10. Определитель: $399 - 2\lambda$, при $\lambda = [399/2]$ ранг равен 3, иначе 4