

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -4 & 1 & 0 & 0 \\ -2 & 2 & 1 & 0 \\ \frac{5}{2} & 0 & \frac{27}{32} & 1 \end{bmatrix}, U = \begin{bmatrix} 2 & 0 & 5 & 0 \\ 0 & -2 & 16 & -7 \\ 0 & 0 & -16 & 13 \\ 0 & 0 & 0 & -\frac{191}{32} \end{bmatrix}$$

3.

$$\begin{pmatrix} -7 & -19 & 18 \\ -10 & -3 & -12 \\ -13 & -12 & -15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 5, 6)(2, 3, 4, 9, 7), \text{ord} = 20, \sigma^{-719} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 8 & 3 & 4 & 9 & 6 & 1 & 2 & 5 & 7 \end{pmatrix} = (1, 8, 5, 6)(2, 3, 4, 9, 7)$$

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

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

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

$$7. -\frac{5 \cdot 10^n}{9} + \frac{14 \cdot 28^n}{9}$$

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

9. При  $\lambda = -4$

10. Определитель:  $12 - 30\lambda$ , при  $\lambda = [2/5]$  ранг равен 3, иначе 4