

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{9}{7} & 1 & 0 & 0 \\ -1 & -\frac{49}{48} & 1 & 0 \\ \frac{4}{7} & -\frac{13}{32} & \frac{27}{31} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & 6 & 8 & -1 \\ 0 & -\frac{96}{7} & -\frac{128}{7} & \frac{2}{7} \\ 0 & 0 & -\frac{62}{3} & \frac{31}{24} \\ 0 & 0 & 0 & -\frac{167}{16} \end{bmatrix}$$

3.

$$\begin{pmatrix} -16 & 13 & -4 \\ 2 & 9 & -11 \\ 14 & -12 & 5 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 3, 4, 8, 7)(2, 9)(5, 6), \text{ord} = 10, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 9 & 1 & 3 & 6 & 5 & 8 & 4 & 2 \end{pmatrix} = (1, 7, 8, 4, 3)(2, 9)(5, 6)$$

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

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

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

$$7. \frac{56 \cdot 56^n}{47} - \frac{9 \cdot 9^n}{47}$$

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

9. При $\lambda = 2$

10. Определитель: $73\lambda - 237$, при $\lambda = [237/73]$ ранг равен 3, иначе 4