

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{9}{8} & 1 & 0 & 0 \\ \frac{5}{8} & \frac{49}{81} & 1 & 0 \\ -\frac{3}{8} & -\frac{35}{81} & \frac{538}{721} & 1 \end{bmatrix}, U = \begin{bmatrix} -8 & -10 & -6 & -10 \\ 0 & \frac{81}{4} & -\frac{1}{4} & \frac{45}{4} \\ 0 & 0 & \frac{721}{81} & \frac{58}{9} \\ 0 & 0 & 0 & -\frac{8434}{721} \end{bmatrix}$$

3.

$$\begin{pmatrix} -18 & 13 & 6 \\ 7 & -8 & -14 \\ -13 & 5 & 19 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 5)(2, 9, 3, 4, 7, 8, 6), \text{ord} = 14, \sigma^{-811} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 5 & 9 & 4 & 7 & 1 & 2 & 8 & 6 & 3 \end{pmatrix} = (1, 5)(2, 9, 3, 4, 7, 8, 6)$$

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

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

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

$$7. \frac{4(-72)^n}{7} + \frac{3 \cdot 54^n}{7}$$

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

9. При  $\lambda = -1$

10. Определитель:  $5 - 5\lambda$ , при  $\lambda = [1]$  ранг равен 3, иначе 4