

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 5 & 1 & 0 & 0 \\ 4 & \frac{26}{49} & 1 & 0 \\ -1 & -\frac{2}{7} & \frac{21}{10} & 1 \end{bmatrix}, U = \begin{bmatrix} 1 & 8 & 9 & 9 \\ 0 & -49 & -53 & -55 \\ 0 & 0 & -\frac{190}{49} & -\frac{726}{49} \\ 0 & 0 & 0 & \frac{122}{5} \end{bmatrix}$$

3.

$$\begin{pmatrix} -2 & -1 & 0 \\ 19 & 1 & -9 \\ 7 & 13 & -13 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 8, 9, 6, 3, 5, 4)(2, 7), \text{ord} = 14, \sigma^{-739} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 7 & 1 & 9 & 8 & 4 & 2 & 3 & 5 \end{pmatrix} = (1, 6, 4, 9, 5, 8, 3)(2, 7)$$

$$6. \text{Id}; (1, 2, 3, 4, 5, 6, 7); (1, 3, 5, 7, 2, 4, 6); (1, 4, 7, 3, 6, 2, 5); \\ (1, 5, 2, 6, 3, 7, 4); (1, 6, 4, 2, 7, 5, 3); (1, 7, 6, 5, 4, 3, 2);$$

$$7. -\frac{2 \cdot 16^n}{3} + \frac{5 \cdot 40^n}{3}$$

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

$$9. \text{При } \lambda = 8$$

$$10. \text{Определитель: } 16\lambda - 704, \text{ при } \lambda = [44] \text{ ранг равен } 3, \text{ иначе } 4$$