

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{1}{3} & 1 & 0 & 0 \\ -1 & 1 & 1 & 0 \\ -1 & -\frac{1}{4} & \frac{1}{8} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & -6 & 1 & 2 \\ 0 & -12 & -\frac{14}{3} & -\frac{1}{3} \\ 0 & 0 & -\frac{4}{3} & \frac{4}{3} \\ 0 & 0 & 0 & -\frac{29}{4} \end{bmatrix}$$

3.

$$\begin{pmatrix} 14 & -8 & 14 \\ 2 & 13 & 12 \\ -6 & 16 & 18 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 9, 2, 3, 6, 4)(5, 8, 7), \text{ord} = 6, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 3 & 6 & 1 & 8 & 4 & 5 & 7 & 2 \end{pmatrix} = (1, 9, 2, 3, 6, 4)(5, 8, 7)$$

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

$$7. \frac{3(-24)^n}{5} + \frac{2 \cdot 16^n}{5}$$

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

$$9. \text{При } \lambda = 4$$

$$10. \text{Определитель: } 64\lambda - 744, \text{ при } \lambda = [93/8] \text{ ранг равен 3, иначе 4}$$