

1.

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

$$2. L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{2}{7} & 1 & 0 & 0 \\ \frac{2}{7} & -\frac{2}{5} & 1 & 0 \\ -\frac{2}{7} & \frac{52}{25} & -\frac{87}{85} & 1 \end{bmatrix}, U = \begin{bmatrix} 7 & -2 & -3 & 7 \\ 0 & \frac{25}{7} & \frac{34}{7} & 6 \\ 0 & 0 & \frac{34}{5} & \frac{32}{5} \\ 0 & 0 & 0 & -\frac{164}{85} \end{bmatrix}$$

3.

$$\begin{pmatrix} -1 & -17 & -14 \\ 6 & 0 & -4 \\ 12 & -11 & 16 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1, 6, 2, 4, 3, 5, 7)(8, 9), \text{ord} = 14, \sigma^{-827} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 7 & 6 & 4 & 2 & 3 & 1 & 5 & 9 & 8 \end{pmatrix} = (1, 7, 5, 3, 4, 2, 6)(8, 9)$$

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

$$7. \frac{50 \cdot 100^n}{47} - \frac{3 \cdot 6^n}{47}$$

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

9. При $\lambda = -4$

10. Определитель: $51\lambda + 176$, при $\lambda = [-176/51]$ ранг равен 3, иначе 4