1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -1 & 1 & 0 & 0 \\ -\frac{4}{9} & \frac{46}{45} & 1 & 0 \\ -\frac{1}{3} & -\frac{13}{30} & -\frac{672}{871} & 1 \end{bmatrix}, U = \begin{bmatrix} 9 & -5 & -9 & -1 \\ 0 & -10 & -16 & -5 \\ 0 & 0 & \frac{871}{45} & \frac{17}{3} \\ 0 & 0 & 0 & -\frac{14159}{1742} \end{bmatrix}$

3.

$$\begin{pmatrix} -8 & -11 & -8 \\ 10 & 2 & 18 \\ -4 & -7 & 8 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,8,9)(2,4,3,6,7,5), ord = 6, \sigma^{-733} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 9 & 5 & 4 & 2 & 7 & 3 & 6 & 1 & 8 \end{pmatrix} = (1,9,8)(2,5,7,6,3,4)$$

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

7. $\frac{(-3)^n}{8} + \frac{7 \cdot 21^n}{8}$

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

9. При $\lambda = 5$

10. Определитель: $572 - 58\lambda$, при $\lambda = [286/29]$ ранг равен 3, иначе 4