1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{5}{6} & 1 & 0 & 0 \\ -1 & -\frac{36}{89} & 1 & 0 \\ \frac{1}{6} & \frac{25}{89} & -\frac{152}{137} & 1 \end{bmatrix}, U = \begin{bmatrix} 6 & -7 & 3 & 4 \\ 0 & \frac{89}{6} & -\frac{19}{2} & -\frac{16}{3} \\ 0 & 0 & \frac{548}{89} & -\frac{637}{89} \\ 0 & 0 & 0 & -\frac{974}{137} \end{bmatrix}$

3.

$$\begin{pmatrix} -8 & -17 & 19 \\ 1 & 14 & -13 \\ -13 & -14 & 15 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,4,2)(3,8,7,5,6,9), ord = 6, \sigma^{-787} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 2 & 4 & 9 & 1 & 7 & 5 & 8 & 3 & 6 \end{pmatrix} = (1,2,4)(3,9,6,5,7,8)$$

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

7. $\frac{2(-4)^n}{11} + \frac{9 \cdot 18^n}{11}$

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

9. При $\lambda = -8$

10. Определитель: $24\lambda - 192$, при $\lambda = [8]$ ранг равен 3, иначе 4