1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -\frac{3}{2} & 1 & 0 & 0 \\ \frac{3}{2} & -\frac{13}{33} & 1 & 0 \\ -\frac{7}{6} & 1 & -\frac{66}{37} & 1 \end{bmatrix}, U = \begin{bmatrix} -6 & -9 & 3 & -3 \\ 0 & -\frac{33}{2} & \frac{19}{2} & -\frac{11}{2} \\ 0 & 0 & \frac{74}{33} & \frac{19}{3} \\ 0 & 0 & 0 & \frac{233}{37} \end{bmatrix}$

3.

$$\begin{pmatrix} -11 & 17 & 10 \\ 17 & 1 & -12 \\ 19 & 17 & -4 \end{pmatrix}$$

4.

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

5.

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

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

7. $\frac{20 \cdot 40^n}{17} - \frac{3 \cdot 6^n}{17}$

8. $1 + 4 * x + 3 * x^2 + -4 * x^3 + -4 * x^4$

9. При $\lambda = -9$

10. Определитель: $35\lambda - 213$, при $\lambda = [213/35]$ ранг равен 3, иначе 4