1.

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

2. $L = \begin{bmatrix} 1 & 0 & 0 & 0 \\ \frac{3}{4} & 1 & 0 & 0 \\ -\frac{9}{4} & -\frac{35}{37} & 1 & 0 \\ \frac{9}{4} & \frac{11}{37} & -\frac{653}{739} & 1 \end{bmatrix}, U = \begin{bmatrix} 4 & -3 & -9 & 3 \\ 0 & \frac{37}{4} & \frac{35}{4} & \frac{3}{4} \\ 0 & 0 & -\frac{739}{37} & -\frac{94}{37} \\ 0 & 0 & 0 & -\frac{6812}{739} \end{bmatrix}$

3.

$$\begin{pmatrix} -15 & -10 & 17 \\ -5 & -5 & 19 \\ 8 & 1 & -8 \end{pmatrix}$$

4.

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

5.

$$\sigma = (1,4)(2,5,7,9,8)(3,6), ord = 10, \sigma^{-797} = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 4 & 9 & 6 & 1 & 8 & 3 & 2 & 7 & 5 \end{pmatrix} = (1,4)(2,9,5,8,7)(3,6)$$

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

7. $-\frac{(-10)^n}{8} + \frac{9(-90)^n}{8}$

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

9. При $\lambda = 4$

10. Определитель: $8\lambda + 144$, при $\lambda = [-18]$ ранг равен 3, иначе 4